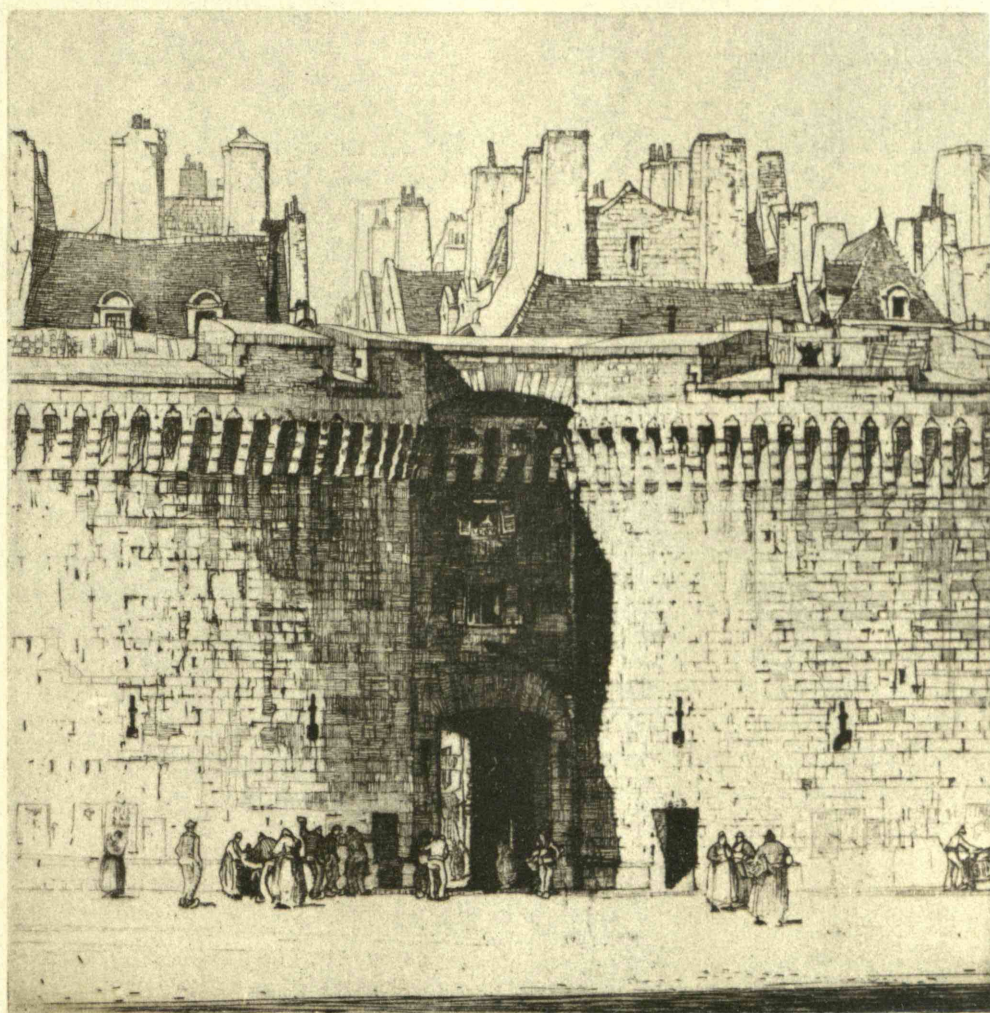


THE TECHNOLOGY REVIEW



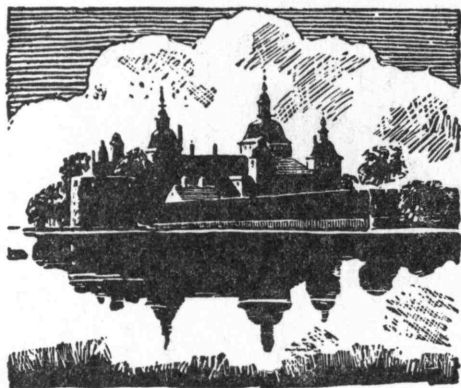
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INSTITUTE OF TECHNOLOGY
APRIL • • • • 1929

technology review

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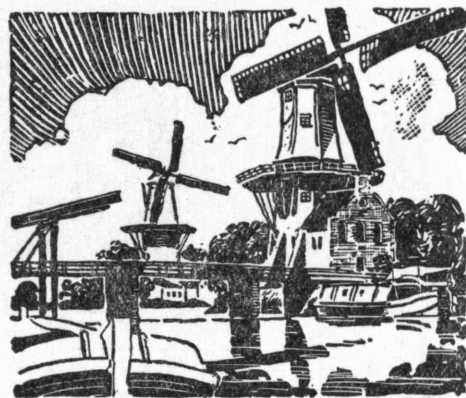
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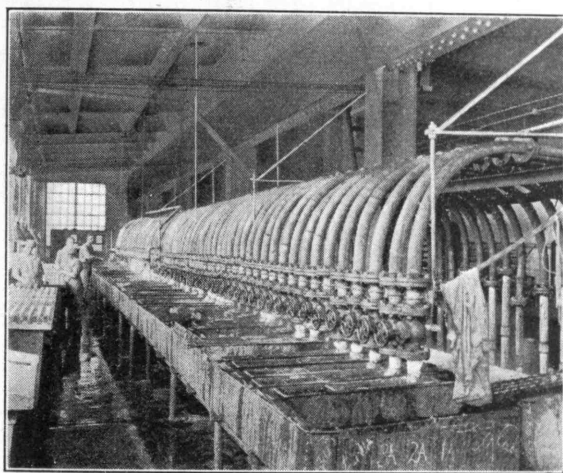
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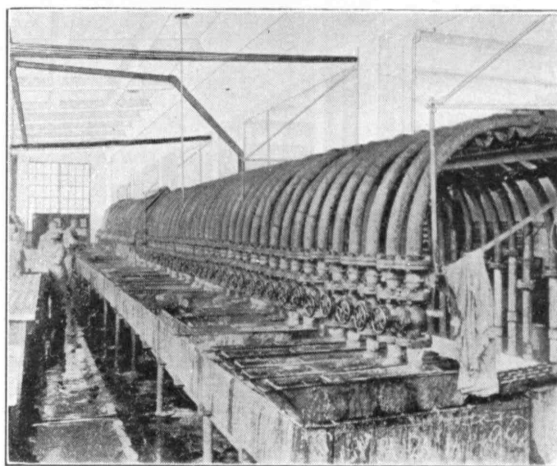


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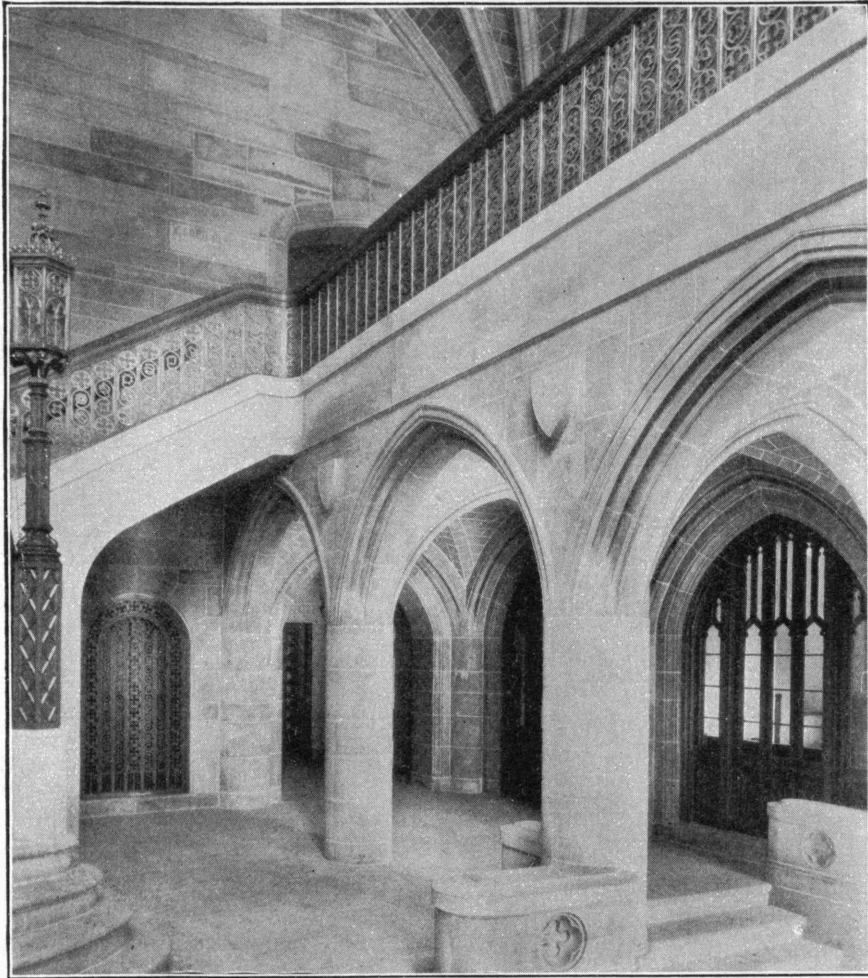
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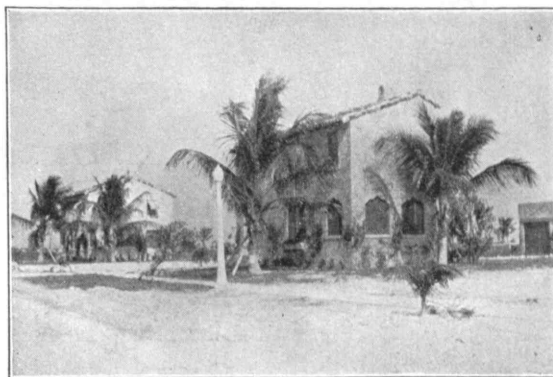
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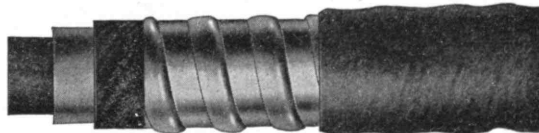
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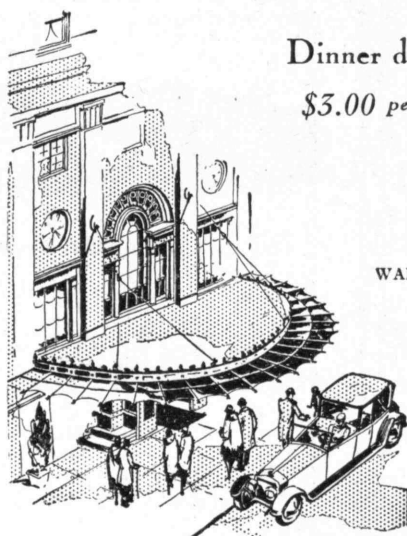
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THE TABULAR VIEW

THE "talkie," or sound moving picture, has been tremendously developed in the last two years, due largely to the work of men in the Bell Telephone Laboratories and to the promotional efforts of Warner Bros. Pictures, Inc. Edison was primarily the inventor of the idea of sound and motion synchronized, but he had better success with motion, resulting in the "movie." Since the dramatic opening of "The Jazz Singer" in New York, moving picture producers have realized that sound has become an essential in the cinema world, and while results are far from perfect at present, the talking movie is rapidly improving technically under the care and research of scientists, all too few in number. ¶ JOSEPH A. BALL, '15, entered the field of the motion picture upon his graduation from the Institute. From Kalmus, Comstock and Westcott, Inc., to Technicolor Motion Picture Corporation, and finally to the Technical Department of the Producers Association, a branch of the Hays organization, he went, gathering experience and knowledge of every branch of the motion picture. His article in this issue gives the layman an idea of the difficulties to be overcome in the production of the "talkie." ¶ ALFRED P. SLOAN, JR., '95, left for Europe shortly after The Review obtained his article on the automobile industry. Those who read the public prints are familiar with the furor he has created on the continent by his negotiations with the Adam Opel Company, the leading automobile manufacturer of Germany. Mr. Sloan has effected an alliance between General Motors and Opel whereby the former will invest about \$30,000,000 and will contribute financial, engineering, and managerial resources. The alliance will make General Motors a dominating factor in the automobile business of Europe, and an influential force in the world's industry. In the light of this great expansion, Mr. Sloan's article takes on added meaning. ¶ Mr. Sloan, who has successively held the positions of Director of the E. I. du Pont de Nemours and Company, Director of the Chase National Bank, and President of the United Motors Corporation, is now President of the General Motors Corporation and Term Member of the Institute's Corporation since 1926.

JOHN BAKELESS has devoted most of his life to the study of modern economic conditions. This has taken the form of magazine work with *The Living Age*, *The Independent*, and *The Forum*. Besides his editorial work he has lectured on a variety of topics and written "The Origin of the Next War." At present Mr. Bakeless holds the position of Editor of *The Living Age*. In his article, "Science and World Affairs" on page 335, he pleads for the use of more scientific methods in solving social and international problems. ¶ Since JOHN M. BREWER received his Ph.D. from Harvard in 1916, he has given most of his time to teaching in California, and at Harvard. In 1920 he became a director of the Bureau of Vocational Guidance at Harvard as well as a member of several societies interested in vocational guidance. He has
(Concluded on page 326)



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THE TABULAR VIEW

(Continued from page 325)

written seven or eight books on this form of personnel research that place him in the foremost rank of educators interested in vocational guidance.

THE cover etching for this month is an excellent piece of draughtsmanship by Louis C. Rosenberg, '13. An interesting composition has been made from the small shadowed gate in the great city wall with roofs of quaint old houses peering above it. The Editors are indebted to the Casson Galleries for the loan of this etching.

AERONAUTICAL progress is a fact that has become commonplace, but who realizes that in 1928 commercial planes piled up a mileage of 10,472,024 miles and transported 52,934 passengers, a gain over 1927 in mileage of 100 per cent, in passengers of 427 per cent? The Review for May will present a picture of the rapid, astounding changes that are taking place in the aeronautical industry, and an imposing list of contributors have been assembled for this purpose. ¶ Each will write fact, comment, and opinion on his own specialty, and taken altogether, these articles will afford an extensive, authoritative survey. In planning this forthcoming issue the Editors have had the assistance and advice of Associate Professor Charles H. Chatfield, '14, and Daniel C. Sayre, '28, of the Department of Aeronautical Engineering.

THE circulation of The Review increases steadily both within the ranks of Institute Alumni and in the wider field of the general public. By the end of the present volume it will top 8,000 net paid, of which approximately an eighth will be non-alumni readers. This increasing number of general readers derives from the demand for a magazine that presents an authoritative review of science and engineering. The absence of such a magazine has been commented upon in this column before. There is a plethora of trade journals, able and sound, but the general reader would have to wade through dozens of these to get a conception of what is happening in the world of technology. ¶ The several magazines that are attempting to focus this diffuse material into the limits of one book have been forced by commercial competition into a vertiginous, sensational editorial program or else they have clung to the lofty heights of unleavened erudition, unscalable by the lay reader. It is becoming more and more apparent that a golden mean is possible, and The Review is aiming toward it. It proposes to publish an increasing amount of editorial matter that will be informative and entertaining to any reader who is interested in science and engineering, and what person desirous of being well-informed is not interested in these things? ¶ In collecting and presenting this material, it will make use of all the advice, all the knowledge, all the authoritative judgment that it can obtain here at the Institute. Already it has been reported that up-to-date members of women's clubs have been reading it at monthly meetings. That is the apogee in the orbit of journalism.



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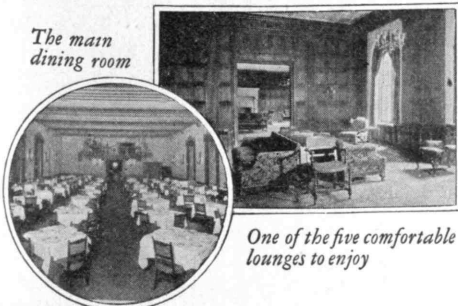
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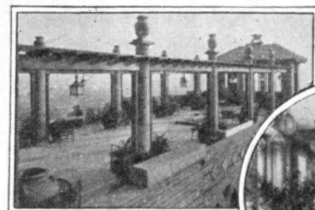
The main dining room



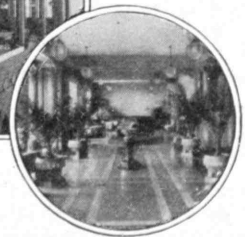
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The TECHNOLOGY REVIEW

VOLUME 31

APRIL, 1929

NUMBER 6

CAMERAS WITH EARS

Hollywood needs engineers and scientists

BY JOSEPH A. BALL, '15

TO appreciate properly the effect of the arrival of the talking picture on the motion picture industry it must first be realized that the photoplay is unique among all art-forms, in that it arises from and is dependent on certain scientific inventions. Painting, sculpture, architecture, music, dance, and the theatre, all existed centuries ago in crude forms. They have gone through progressive developments, and science has contributed to those developments but without changing the fundamental principles of the art. Only the photoplay appears as a new and distinct form created by recent inventions.

When Edison in 1889 invented his kinetoscope, the first motion picture machine, he aimed at mere recreation of an original scene. In fact, Edison originally designed his kinetoscope as an adjunct to the phonograph, planning to recreate sight and sound simultaneously. The earliest demonstration of the machine was in such combination. However, the two inventions went into separate ways from then until very recent years.

The original kinetoscope developed into the so-called "peep shows" and then when screen projection was added there appeared the early crude "movie" theatres. Early pictures were recreations of actual events, public events, prize fights, and so on, and any attempts at dramatic portrayal seemed limited to "a mere dumb imitation of the stage." Gradually there appeared types of pictures based on weird experiences and impossible happenings. These were important because they were the first uses of creative imagina-

tion in connection with the motion picture, and showed that the screen had capabilities greater than the mere recreation of an actual scene.

Gradually a new art-form evolved out of such crude beginnings. It evolved by pursuing its own unique capabilities and not attempting to imitate and recreate the stage. Whenever it did attempt imitation it fell back, but

when it brought before an audience a broad sweeping portrayal of heroic action in a manner impossible on the stage, as in "The Birth of a Nation,"

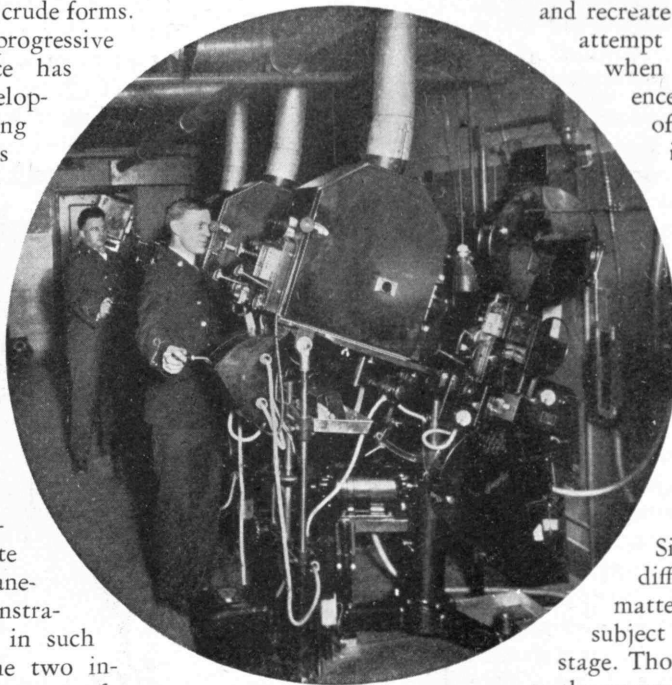
"The Covered Wagon," or "The Big Parade," it was highly successful.

This sweeping portrayal of action, the close-up, the flashback, the inter-cutting of action simultaneous in time but separated in place — these are a few of the details of a technique entirely distinct from that of the stage.

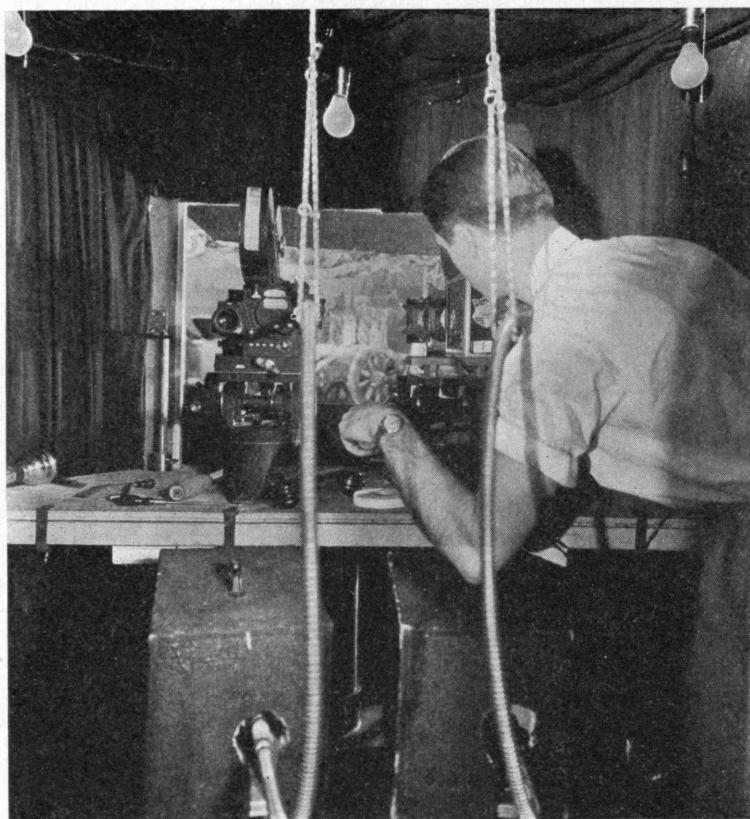
Similarly there grew up a differentiation between subject matter suitable for the screen and subject matter suitable for the stage. Though plays are often adapted to the screen from the stage, they are in general markedly changed and not infrequently entirely changed in form and even in substance during the process of

translation, as is commonly known.

This differentiation was further accented by Edison's endeavor to launch talking pictures on a commercial scale about 1912 or 1913. This attempt was made by a device considerably superior to that demonstrated in combination with the kinetoscope in 1889, but still much inferior to the systems of today. The attempt was not at all successful.



BATTERY OF PROJECTION MACHINES
FOR MOVIETONE TALKING PICTURES

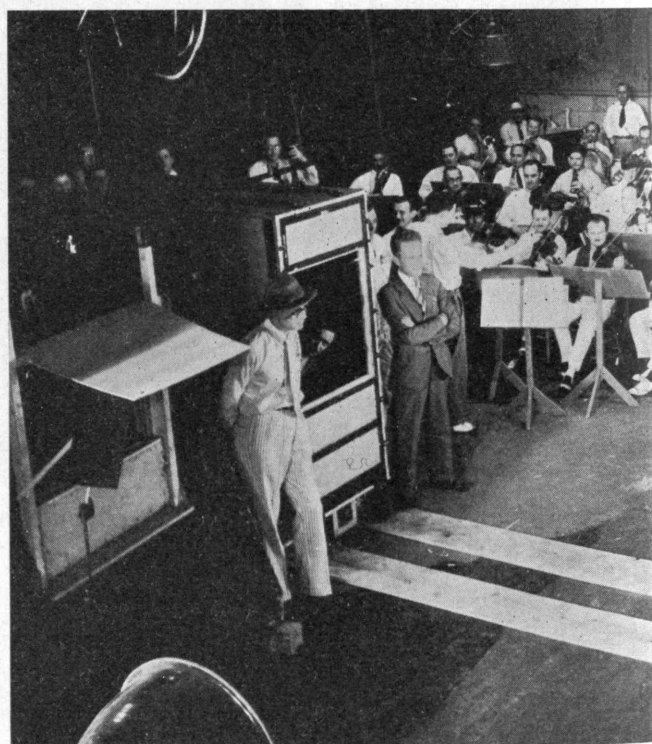


SOUND-PROOF CAMERA BOOTH SHOWING SYNCHRONOUS DRIVE DEVICE WORKING THROUGH FLEXIBLE SHAFTS TO CAMERAS

Yet another differentiation was apparent when "screen personalities" or "stars" appeared in response to popular acclaim based upon an appeal entirely different from that of the stars of the stage. Aside from the comedy stars, the appeal of these "screen personalities" depends upon the desire of the great motion picture public for vicarious adventure and romance. The masses go to see Douglas Fairbanks, Mary Pickford, Clara Bow, and John Gilbert because they themselves would like to look like, be like, act like, dress like, and have adventures like those of their set heroes and heroines. This is an important factor in really understanding the motion picture industry and is a matter regarding which intelligent people often harbor misconceptions. Stars are made by this type of public response and the public is continuously registering its approval or disapproval of particular stories and stars by its patronage. Pictures cost so much to produce and distribute that they must be keyed to awaken this public response. It can be shown that, at least since the creation of the Hays Organization, more pictures have failed by overshooting the mark of public taste and appreciation than have succeeded or failed by undershooting it, but it is also true that the standard of public taste and appreciation is steadily rising.

As the photoplay art-form emerged and developed there grew up a critical opinion expressed clearly by Munsterberg in his book "The Photoplay" (1916) holding that even the printed caption was a flaw in the perfection of the photoplay art-form to be avoided as completely as possible, and that most certainly the screen would not want to reproduce speech, nor color. The industry gen-

erally had been so convinced that this point of view was correct that it had a most negative attitude towards new developments. When the Vitaphone process was developed by the Bell Telephone Laboratories and was offered to the larger producers, they were not interested. Despite the fact that it offered practical perfection of Edison's original plan for the synchronization of disc and film, they believed it had no legitimate use. Then a small and struggling company (Warner Brothers) took it up. Their first efforts were in the direction of "canned" orchestral accompaniments and "canned" vaudeville. These first efforts were far from successful until the company produced a picture called "The Jazz Singer" with more talking pictures, all of which were tremendously successful. Simultaneously the Fox-Case Company brought out a more portable recording method (sound and picture on the same film) and introduced their Movietone News Reel wherein the objective aimed at was a real recreation of the original scene and wherein sound was immediately of great value. The sudden and simultaneous success of these new developments was very dramatic in its effect on the industry. Theatre installations of new equipment increased by leaps and bounds. They now exceed 1500 in number and are proceeding at such a rate that there will be 4000 installations by the end of 1929. The majority of installations have been made by Electrical Research Products, Inc., the Bell System subsidiary with a duplex model designed for either Vitaphone or Movietone. More



STUDIO EQUIPMENT FOR RECORDING SOUND AND PICTURES IN "THE JAZZ SINGER"

recently the system developed in the laboratories of the General Electric Company has been launched as the R.C.A. Photophone, using a variant of the sound-on-film method. Simultaneously all the producers rushed to meet the demands of this new market.

While some of the early talking pictures were terribly crude and open to the objection that they were a step backward toward imitation of the stage, they still retained enough of the photoplay technique to interest imaginative people and enough of novelty temporarily to hold the interest of the unimaginative.

In more recent talking pictures there have been very great advances. Particularly such pictures as "In Old Arizona" and "Broadway Melody" retain all the essentials of the old photoplay art and add to them elements of characterization and incidental details by means of speech and song which were beyond the scope of the old art. This I take to be the proper field for the new invention. A photoplay to be successful must of necessity appeal to a large audience. The type of play wherein plot is developed in brilliant dialogue and verbal description is neither suitable to the photoplay medium nor suitable for such wide-spread appreciation from the public. However, there are so many ways in which characterization can be built and incidental details



MONITORING CONTROL PANELS PLACED IN A BAY HIGH UP ON THE SIDE-WALL OF A SOUND-PROOF STUDIO

added by means of speech and song or even sound effects, that the photoplay art has been given a whole new degree of freedom.

This change in the capabilities of the photoplay art-form is a real revolution in the industry because it so completely alters the work of every one involved. The producer in his choice of materials, the actor, writer, and director in his methods of work are all affected. The stars are also greatly affected. Will he or she be able to project his or her screen personality into the new medium, or will Al Jolson be the first of a series of new personalities drawn from the stage and from vaudeville and musical comedy? The answers to these questions are now in the process of determination.

However violent the changes in the actors' and directors' methods, they are surpassed by the changes in the technical side of the industry. Both in the studio and in the theatre there has been a tremendous increase in the scope and importance of the technicians' activities. Most interesting of all is the fact that still further progress in this direction is inevitable. All new arts in their early stages have a certain amount of rigidity and lack of flexibility, and technical means of avoiding that rigidity and lack of flexibility have to be discovered. This is particularly true in an art-form which depends on such a complicated technical procedure as does the talking picture. In the future development the technicians must lead the way by opening up the new possibilities for the artists and directors to use.

Similarly in the theatre the best efforts of the production forces can be entirely destroyed if the projection equipment is not adequately cared for. Throughout the whole industry the status of the (Continued on page 374)



AL JOLSON SINGING FOR THE TALKING PICTURE, "THE JAZZ SINGER." SEE OPPOSITE PAGE

MILLIONS OF AUTOMOBILES

*A great industry comes of age and
looks into the future*

BY ALFRED P. SLOAN, JR., '95



THE ABLE
PRESIDENT
OF GENERAL
MOTORS WHO
WRITES BELOW OF
HIS IDEAS AND IDEALS

I DO not know to what extent people appreciate the important influence that new developments are having on the wealth of our country or on our national prosperity. They may or may not know that the automotive industry, measured in terms of its manufactured products, has become our greatest industry, out-distancing steel and steel products several years ago. Having reached that enviable and important position in twenty-five years the automotive industry must necessarily take the responsibility of an equally important influence in the creation of the nation's yearly income. Viewed from a different standpoint it is interesting to note that the wealth produced yearly by the automotive industry in this country is approximately equal to the wealth created by agriculture. Assuming there to be no economic difference, and I do not think there is, between wealth produced by the capitalization of the country's national resources through industry and commerce as compared with the corresponding amount of wealth produced through the capitalization of the soil through agriculture, then we can get a better realization of what this relatively new industry is contributing to our general welfare.

Looking at it from still another angle, I have estimated that, taking those directly concerned in the production of motor cars and parts, adding those engaged in the distribution of those products and the servicing of them together with the usual number of dependents, but in no way giving consideration to the large number of individuals and their dependents engaged in the production, of raw materials, there are from 12,000,000 to 15,000,000

people or about ten per cent of our entire population dependent, so far as their purchasing power is concerned, directly upon this particular industry. The automotive industry is exceedingly fortunate; far more so than many other industries.

The progress that it has made and the position that it has created for itself is due to two important considerations, both of which I think are essential to the establishment of such a record. First, there is a fundamental desire on the part of practically every individual the world over to own a motor car. That is perfectly natural because for the first time in the development of the world there has been developed a means of individual independent transportation at a remarkably low cost and with great convenience and personal comfort. This I believe to be sociologically constructive for the reason that the more we are able to travel from one place to another, the more rapidly are broken down the prejudices that distance and lack of contact create. Again, the wider our horizon, the broader become our minds and the better citizens we become and the better the country becomes.

A second factor, however, is essential. I believe that it can fairly be stated that from the very beginning the automotive industry has been actuated, without perhaps a full appreciation of its importance, with an insatiable ambition for progress. It has never been satisfied and I hope never will be satisfied with its achievements. Perhaps part of this attitude might be explained by the fact that it was an entirely new industry. It started with nothing but an idea and a hope. It had no history or precedent to handicap it and is it not a fact that history and precedent are frequently tremendous handicaps to progress and development? I make this statement because I do not think it fair for those connected with this great industry to credit themselves with too much ability or too much foresight.

FROM the inception of this industry up to almost the present there has been a great deal of skepticism among those who would naturally be expected to deal fundamentally with the subject when considering the ability of the industry to maintain its state of productivity and prosperity, let alone improve its position. On account of that, our future has always been surrounded by an atmosphere of uncertainty. Yet the world has seen a continuous advance in our achievements measured by practically a continuous increase in our production and a greater contribution to the prosperity of our people.



MAIN OFFICES OF THE GENERAL MOTORS CORPORATION, DETROIT, MICHIGAN

During the year just closed we established a production record of over 4,500,000 passenger and commercial vehicles, a new record for all time. Had it been possible for one important producer to bring more rapidly into line his production facilities this record would have been substantially greater.

We in General Motors are charged with a heavy responsibility in the form of a trusteeship for a tremendous aggregation of capital. We must of necessity be concerned with what the future is likely to bring forth. It becomes our duty to inquire, so far as our power of analysis and available statistics enable us, into the influences that bear on the possibilities of the future. We, through what I believe to be an exhaustive research study bringing into the picture all factors that appear to have any influence and properly weighing those factors, have come to the conclusion that there is sound economic reason for believing not only that our industry can maintain its present position but that we can ultimately reach and maintain yearly within the next three or four years a production of approximately 5,500,000 vehicles.

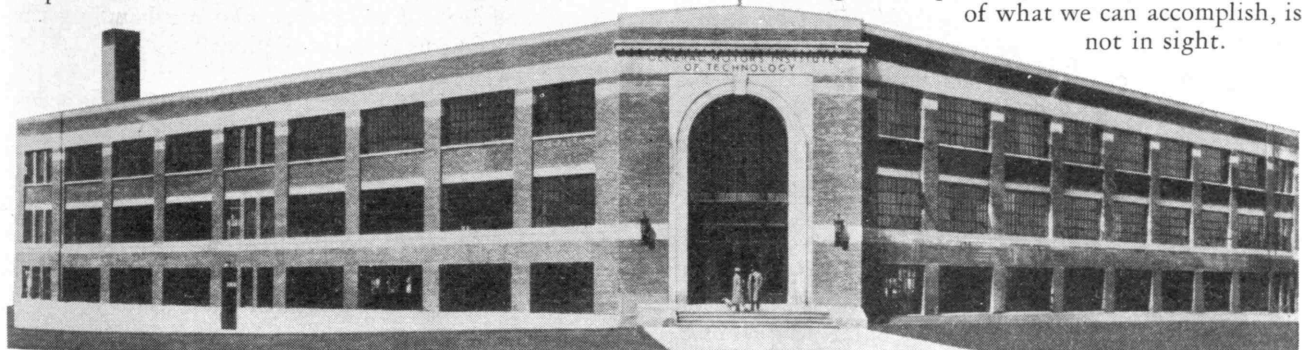
I do not believe that there is a realization of certain of the influences which have enabled us to reach our present position. When I make the statement that, of

the 25,000,000 automobiles registered in the United States in more or less daily use, over fifty per cent are being operated by those who have purchased them at a cost less than the cost of the lowest price new car, we get a better understanding of how it is possible to maintain such a high automobile population in proportion to our total population. What really takes place is that the number of miles of transportation built into the motor car by the manufacturer is consumed only in small part by the original purchaser, but through the adoption of new and more attractive models the more fortunately situated desire the thrill of having the newest and latest development of that car, sending the original car as a used car down through the used car market.

It is a fact that it will be absolutely impossible for our industry to maintain its present state of productivity and its corresponding contribution to the national welfare unless the cycle of the new car and the used car is maintained. If our industry can stimulate the rapidity of that cycle we will be able to improve our position. Conversely, should at any time in the future the point be reached when the industry cannot or does not maintain progress, at that time we may surely expect a sharp reduction in our prosperity and in turn our contribution to the prosperity of the country.

THIS means that it behooves the automobile manufacturer diligently to employ himself through research, improved engineering, more effective manufacturing and distribution as well as intensive development of the artistic side in order that real fundamental progress may be continued to the end that a proper incentive be supplied for the maintenance of the cycle to which I have referred.

Sometimes as I look at our models in various stages of development it seems to me that it is almost impossible for the industry to offer any greater dollar value. Yet as I go through our research laboratories, our engineering departments, and see what our manufacturing executives are able to accomplish from year to year, I realize that as long as the spirit of progress prevails, the end of what we can accomplish, is not in sight.



GENERAL MOTORS INSTITUTE OF TECHNOLOGY CONCRETELY REPRESENTING THE CORPORATION'S BELIEF IN THE VALUE OF RESEARCH AND TECHNOLOGICAL TRAINING

One of the most interesting phases, I believe, to all students of industrial developments in this country and abroad is the trend toward the absorption of an increasing part of business using that in its broad term, by large organizations or, expressed otherwise, the trend of business toward bigger and bigger business. I am sure you must appreciate that this is taking place in many spheres of activity. There probably is in the minds of some a feeling that this tendency is to be regretted, but irrespective of what our individual opinion may be as to the psychological phase of the question, the fact remains that as long as it is economically sound and as long as the public can be served better, which to my mind is the standard of measurement, just to that extent is the trend bound to proceed. I personally believe that it will proceed and at an accelerated pace.

WE MIGHT divide business into two parts, production and distribution. The greatest problem that confronts us as an industry in the handling of a turnover of approximately \$3,000,000,000 is the efficiency, effectiveness and stability of our distributing organization, the placing of that organization on a sounder and more economical foundation. Time does not permit and the reader would not be particularly interested in problems or troubles individual to us, but there is one phase of the question that I want to point out because it applies to all business, under all conditions. I am hopeful also that if we in General Motors are able to accomplish what I believe is possible, we will have made a contribution which will be helpful and perhaps outstanding to business in general.

General Motors distributes its products through 20,000 dealers scattered over the entire world. These dealers have invested in our distributing system hundreds of millions of dollars and employ organizations aggregating over 1,000,000 individuals. During the past few years I have visited practically every city of any size in the United States. Many cities have been visited many times. I have undertaken that work in order to develop direct contact with matters of distribution and allied problems in the hopes that from such contacts would flow better principles and policies and we would be able to see more clearly as to what should or should not be done. As a result of this work I came to the definite conclusion that we would never be able to deal scientifically with our problems of distribution any more than we can intelligently deal with any problem without having facts on which our procedures can be formulated. The facts in this case are: first, the ability of the manufacturer to analyze the merchant's business collectively. In other words, we must start with proper accounting and it is on that subject that I want to say a few words.

I believe that through an organization which we have been creating and are expanding and which will eventually spread all over the world, we shall be able to so stabilize our distributing organization that the failure of any dealer to make on the average a return on the capital he is employing or the loss on the part of any dealer of his capital will, in general, be a thing of the past. As I see the picture, business — and I believe that this applies quite generally to large business as well as small business and both to the production and distribution end — lacks

an appreciation of the possibilities of what can be accomplished through accounting. The more popular conception of this subject is to enable us to know how we stand at the end of any period. In other words, it is a matter of history. Too many lines of business have established accounting systems because they recognize it as the right thing to do. They have not, however, an adequate appreciation of what its tremendous possibilities are. While it is important to know our status at any time, it is still far more important to understand and appreciate the various factors and influences that underlie our whole structure to the end that we can look forward, by means of our accounting system, and can alter our procedure or policies to the end that a better operation results. In one case we are in principle, looking backward — in the other case, forward.

In General Motors, notwithstanding the fact that we are handling business approaching \$1,500,000,000 scattered all over the world and of very complicated character, we are yet able to so forecast our operations four months ahead with a certainty that would hardly seem possible. Following the same line of thought we are confident that we shall be able to lay before our distributing organization bogies of expense and facts and figures as applied to their individual business which are entirely practical and which will serve to operate as sign posts down a straight road to a definite and satisfactory profit. It is our hope and ambition that we shall be able to put our distributing organization in a position where the banking fraternity will recognize that any merchant handling a General Motors product is a reasonably safe credit risk. Further, under such circumstances we should be able to attract into our organization merchants of unusually high standards of character and ability. I have been appalled in the development of this work at the utter lack of appreciation on the part of even our big organizations as to the fundamental factors upon which their profit and loss depends. If I could tell even a few instances that have occurred during the past two years that we have been developing this situation, the reader would hardly believe it possible. I do not know whether the automobile merchant is more or less aggressive or progressive than the average merchant. Irrespective, however, of that fact, I believe there is nothing that those of us charged with great responsibilities in the distribution of merchandise can do of a more constructive nature than to sow the seed of the necessity of proper knowledge of the facts particularly as to the future, in the minds of the tens of thousands of merchants who are handling the distribution of merchandise of all kinds.

LET me summarize the principles I keep before me in the operation of General Motors. We take the position that our stockholders are entitled to know the status of the business which in the aggregate they own. At all times we try to keep in mind the interests of not one stockholder or a group of stockholders but all the stockholders. There frequently arise questions of policy and procedure affecting the position of one part of the Corporation as against another. In such instances the raising of the question as to what the interest of the stockholders require enables us to obtain the correct answer. No management can have a proper *(Continued on page 378)*

SCIENCE AND WORLD AFFAIRS

Scientific methods are needed to solve social and international problems

By JOHN BAKELESS

NO OTHER characteristic of the age we live in is more disquieting than its failure to develop means of social control that in any adequate way correspond to the astonishing advance of science, pure and applied. Within an incredibly short space of time technology has placed enormous power in the hands of even the humblest. The fact is almost a commonplace. The most ordinary workman drives to the factory in a motor car which only a few years ago would have been a fit plaything for a king. If he chooses, he may listen through the radio to the same opera or the same orchestra as the millionaire who owns the factory. A touch of his hand on the levers of a steam shovel, a riveter, or a pile driver places at his command the labor of a thousand slaves. Thanks to the cables, the wireless telegraph, the linotype, and the high-speed rotary press, practically everything that has been done and said in the whole world — and this inevitably includes some exceedingly foolish and dangerous things — is gathered up and laid before him every morning in the modern newspaper.

Yet enormous as this extension of our sensory and muscular powers is, few of us seem to find any worthy way to employ it. With all this "progress" it is an open question whether we are really very much happier or very much better than our ancestors. It is an open question whether it is really more wholesome for mind or body to ride to work in a motor car than to walk to work in the old-fashioned way. It is doubtful whether the average radio program — its intellectual and artistic cheapness considered — is really worth all the skill, time, and ingenuity required to send it hurtling through the atmosphere. It is only too probable that the understanding of nature and the victory over her which we owe to science may yet bring irretrievable disaster rather than benefit upon us — unless we can gain a similar understanding of our own motives and a similar mastery over the social forces to which they give rise.

Nowhere is the dangerous aspect of the disparity between the swift advance of technical science and the lagging of the means of social control more apparent than in the field of international relations. Especially is this

obvious where questions of war and peace are concerned — as they are concerned almost constantly in all relations between states since diplomats still have the bad habit of employing the silent threat of possible war as a mute argument in all negotiations. The immense expansion of the destructive capacities of modern war is wholly the work of the technologist — although he is, of course, in these as in all his other achievements, basing his work

on the general principles discovered by workers in pure science whose contribution has preceded his own. Examples are so many and so obvious that they will occur to any one: the extension of the effective range of musketry from the hundred yards or so (which was as far as bullets would carry in the battles of Lexington and Concord) to the three-mile range of the modern Springfield; the increased power of artillery fire from its modest capacity in the last century to the sixty- and seventy-mile range of Big Bertha during the last war; the introduction of chemical warfare; the use of aircraft in reconnaissance, in battle, or in raiding civilian centers of population and munitions factories.

But the real influence of technical science upon the problem with which the conditions of modern war confront us goes a good deal further than this. Modern war is dangerous to the very existence of civilization for

two reasons. The first is the immense scale on which it is waged and the terrific destruction which is therefore inseparable from any conflict. The second is the extreme complexity of the modern economic structure, which has made all nations so thoroughly interdependent that a war in one part of the world vitally concerns many other parts and may even threaten the existence of civilization as a whole.

Now both these facts are largely due to technical science and the possibilities which it opens both to the arts of war and to the arts of peace. It is technology which has built our civilization. Will technology also destroy it?

A century ago war was necessarily waged by a relatively small part of the population of a belligerent state. The soldiers (usually volunteers) marched away to war, and peace reigned behind them — unless they were



MR. BAKELESS IS EDITOR OF THE LIVING AGE AND
AUTHOR OF "THE ORIGIN OF THE NEXT WAR"

defeated. Not until the conscription system was developed on the modern scale in the nineteenth century did war involve whole populations — and for this development applied science is directly responsible. There was nothing new in conscription itself. The idea that every able-bodied man is liable to bear arms in defense of the social group to which he belongs was familiar enough to the cave man, and the little city states of classical times applied it in times of national need. Machiavelli discussed it in the sixteenth century. In 1798, the French passed a law allowing the military authorities to call to the colors all men between the ages of twenty and twenty-five; and Napoleon boasted: "I can afford to expend thirty thousand men a month." But even Napoleon never tried to manœuvre such armies as fought in the World War. The technical means of doing so were not yet available. The introduction of the conscription system on a scale which calls out the whole strength of the population and produces literally a "nation in arms," the conscription system as it existed in Europe before the War, as it existed in the United States during the War, and as it still exists in many states at present, was made possible only by the progress of science and invention during the nineteenth and twentieth centuries.

MILITARY leaders of an earlier day would have been glad to swell the size of their armies. But it is no use building up an army larger than you can supply and control under the difficult conditions of the battlefield. Until the telegraph — later supplemented by wireless and radio — was made practical, the difficulty of communicating orders by flag signal or dispatch riders imposed rigid limits on the number of men to whom a commander could communicate his will. Similarly, until railways were criss-crossing the world in every direction, the concentration and supply of armies and the rapid transfer of huge masses of reserves was simply out of the question. Even as late as the Spanish-American War, it was dangerous to bring large masses of troops together because prophylactic medicine — which is directly due to the bacteriological laboratory — had not made it possible to prevent epidemics.

War was therefore waged by small professional armies, and the destruction which it produced was limited, for these small armies operated only over a relatively small area. So little influence did war have on economic life that during the war of the Spanish Succession the trade in doll-mannequins used to demonstrate fashions went on uninterrupted between Paris and Vienna! In the modern world the disruptive effects of war upon trade relations are too familiar to require detailed discussion. But the effect of modern war is disruptive solely because the modern world is such a closely knit economic unit. And what has made the modern world a closely knit unit? Obviously the improved methods of communication and transportation which have given rise to the modern industrial system.

In each case we find that the problem is ultimately due to the technical man. It is he who devised, perfected, and constructed the modern telegraph, cable, radio, telephone, and wireless systems. It is he who has provided us with railroads, steamships, airships, airplanes, and

motor vehicles. It is he, too, who has invented and built the innumerable machines employed by modern industry. It is, in short, he who has transformed modern society and international relations along with it.

And all that he has done is due to his employment of scientific method. In its essence the method of science is very simple; and it is capable of application (as I hope presently to show) in many places other than the laboratory. It is, in the first place, coolly intellectual. Distorting emotions do not (or at any rate should not) have any place in it. The method of science requires that one accept as true anything that is adequately proved — whether one likes it or not. The method of science is, furthermore, primarily inductive: it proceeds by observation of the relevant facts and moves to generalizations only when it has observed either all the relevant facts or, at least all the relevant facts that can be discovered. If science were to fulfill all the requirements of pure logic, it would announce no conclusions whatever until it had surveyed *all* relevant facts. But as in this imperfect world new and unsuspected facts are continually turning up, the scientific method must furthermore include one additional attitude: the genuinely scientific worker must maintain an open mind toward all conclusions, realizing that he can never tell at what moment new data may compel their revision. When a new fact appears, he must be ready to scrap any generalization, any theory, no matter how cherished or how long familiarity has seemed to give it sanction. For science is concerned solely with the truth; and when an idea, once accepted, is shown to be false, it is part of the method of science to scrap the old idea and accept the newer, more accurate approach to ultimate truth.

Science, in short, can never be dogmatic; must always be tentative in its conclusions; will always act on the most reasonable conclusion possible, while waiting for a better. And though the scientist, being human, cannot get wholly free of emotion, he tries to make reason dominant.

WHY has technology advanced with such rapid strides, while the means of social control over the forces that technology places in human hands has so lamentably lagged? Is it not in large measure due to the pretty general employment of the scientific method in technology on the one hand, and to an equally general neglect of it in most other fields?

Now science has, after all, no exclusive claim to the scientific method. The technique of the laboratory belongs to science alone; but the ultimate principles upon which that technique depends are simply the ordinary principles that govern straight thinking everywhere. Why not, then, apply them to the ordinary affairs of life? Why not apply the coolly rational method of the laboratory to politics — both national and international? And above all, if the rational method of science has been used to create forces which produced anything so thoroughly irrational as the present state of social, political, and international affairs, why not give that same method a chance to straighten matters out?

The idea is in itself so obvious and so natural that one wonders at first why it was not made a reality long ago. But we must remember that when we deal with the

forces that govern men in society or nations in diplomacy, we are dealing with forces that cannot be analyzed so easily as those with which the laboratory deals. Any astronomer can tell you where Neptune will be this time next year. Can any power under heaven tell what Cabinet will be in power this time next year, in France? Any mathematician can lay down hard and fast rules for the behavior of numbers; but can any politician, with even a remote approach to certainty, predict what the next Congress may do in the matter of the French war debt or the tariff?

This is because man is so imperfectly rational an animal. Even in science the distorting influence of uncontrolled or imperfectly controlled emotion upon straight thinking is familiar enough; yet the subjects with which science deals are not such as to exert any unusual emotional effect, and scientific workers themselves are men of exceptional training, education, and intellectual ability. It is natural, then, that outside the laboratory, where the ordinary run of humankind is grappling with problems of tremendous emotional appeal, we should encounter curious mixtures of half-thinking, tradition, mob hysteria, and emotionalism which go by such quaint names as "practical business," "practical politics," and "international realities." Nor is it less natural that, in the second quarter of the twentieth century, international relations should still remain in the state of barbaric chaos in which we find them. For here the emotional element is at its strongest and the intellectual element at its very weakest. There is nothing about which the average man feels more strongly than foreign policy — at least in times of international crisis, when foreign policy matters most; there is nothing about which he knows or thinks less.

A GLARING example of the thoroughly unscientific methods of thought and procedure which at present characterize international relations is provided by the Corfu incident, which in August and September, 1923, roused two nations to the fever point and threatened world peace, simply because the Italian government was more concerned with grandiose gestures, designed to strengthen its prestige, than with a dispassionate inquiry into facts.

While an international boundary commission was engaged in delimiting — in a relatively scientific way — the disputed frontier between Greece and Albania, it was waylaid, and five of its members were assassinated. Four of the murdered men were Italians, and one of those was an Italian general. Without waiting for fuller information, the Italian government promptly made seven demands upon the Greek government, which included the payment of fifty million lire, and which allowed but twenty-four hours for consideration and reply. As the Greeks did not instantly yield to every demand, an Italian fleet promptly bombarded the antiquated citadel on the Greek island of Corfu, killed fifteen defenseless refugees, and then seized the island. Greece appealed to the League of Nations; but after a short dispute, the

matter was taken out of the hands of the relatively impartial League Council, and handed over to the Council of Ambassadors — on which the Italians were represented while the Greeks were not! The very natural result was that the Italians received their fifty million lire. Now — as any second lieutenant, or any scientific actuary will tell you — it is very doubtful whether, judged on a scientific scale of values, any general is worth fifty million lire. Certainly the payment could not restore the dead to life, while the truculent methods of the Italians actually did cost fifteen lives, and might well have brought on hostilities which would have cost thousands more.

There was no scientific detachment, no willingness to wait until all the facts were in, and then reach a calm and reasoned decision. The tone of the negotiations throughout was emotional, not rational. The ultimate appeal was to threats of force — and this even though the known facts would undoubtedly have given the Italians a strong case against the Greeks who had failed to safeguard the foreign officials who were their guests.

Or take, by way of another obvious example, the endless wrangles over the twin questions of reparations and war debts. Economists (and statesmen, too, in private) are pretty well agreed on the essentials of the matter; but because, during and immediately after the war, politicians tried to retain office by duping their respective publics with impossible promises, no one for years dared attempt a general solution which should be completely practical because it would also be completely rational. What disinterested expert advice can do in world affairs — when it is heeded — is shown by the success of the Dawes Plan. Yet — from purely emotional causes — Europe struggled for years on the verge of complete disruption before it turned to the obvious means of relief which the unemotional method of science would have dictated from the start.

THE approach that we want in world affairs, then, is essentially that of the laboratory: a calm and honest search for the facts; rational induction from these facts; a willingness to revise irrational conclusions when they have been shown to be wrong. Given such a way of dealing with them, the problems of human nature in its social and international relations might prove as susceptible of solution as the problems of nature.

I should be myself untrue to the scientific method — which is after all neither more nor less than ordinary intellectual honesty — were I to profess any immediate hope of inculcating these principles in the generality of mankind. But always it has been the little leaven which has leavened the great lump. The mass of contemporary humanity is scarcely scientific in its living or its thinking, though the nature of the life it lives has been largely determined by a few men in laboratories. Is it not possible that the same leadership of the rational few may ultimately be applied in these other spheres where it is so badly needed? And if not, what other course can possibly stave off catastrophe?



THE TREND OF AFFAIRS



Zur Einheitlichen Feldtheorie

We thought that lines were straight and Euclid true.
God said, "Let Einstein be," and all's askew.

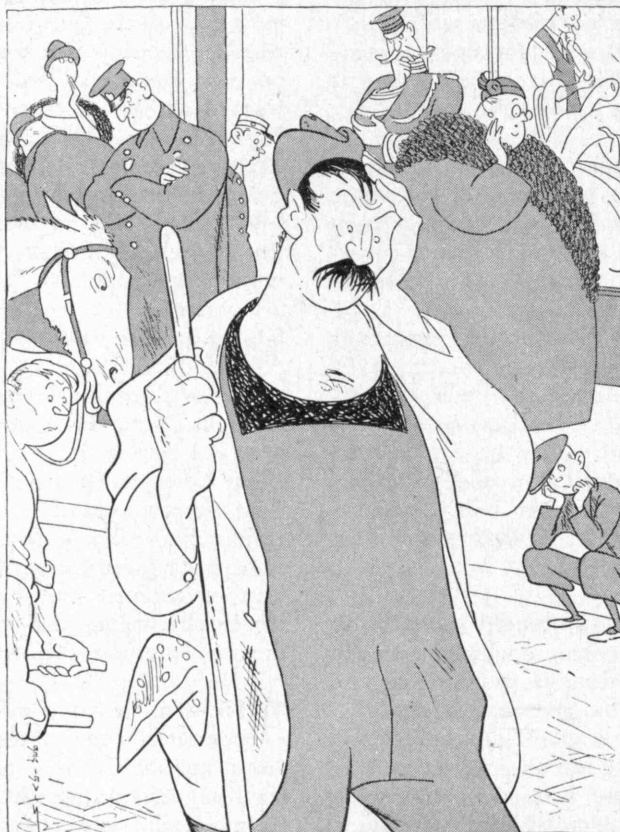
Anonymous

IT only remains now for the advertising agencies to induce Albert Einstein to take the blindfold test or else to sign a testimonial that he could never have solved his equations had he not reached for a Lucky instead of a sweet. Undoubtedly they have tried already and failed; Dr. Einstein is a man of dignity and restraint, and his recent experience with the public press must surely have frightened him into complete seclusion and discouraged him from soon publishing any more of his work lest he again be made a subject for ballyhoo.

Despite the fact that they could understand none of the pages and pages of copy that was spread before them upon the publication of Dr. Einstein's *Zur Einheitlichen Feldtheorie*, readers of the metropolitan papers must have been amused if not impressed by the overweening energy exhibited by the editors in attempting to explain and interpret the document. Certainly out of the welter of incomprehensible comment seduced from professors of physics, one matutinal fillip emerged when a press association sent out the story that was headed up in one newspaper: "EINSTEIN FIND MAY FREE MAN FROM 'GRAVITY,' May Be Enabled to 'Insulate' Ourselves, Says *New York Scientist*. TRIP TO MOON WILL THEN BE POSSIBLE."

Here at least was something that the reader could understand, even though the means were quite beyond him. But it must have been disconcerting when four days later a New York newspaper revealed that another scientist CALLS EINSTEIN'S LATEST THEORY AN ABSURDITY. This indeed was disillusioning to subway readers; their poetic house of cards collapsed. Perhaps floating in air and trips to the moon might not after all be derived from Riemannian geometry, vectors, and tensors. In fact, in an article by Assistant Professor Norbert Wiener of the Institute's Department of Mathematics

to be published in *The Review* for May this is to be definitely belied. They were somewhat reassured, however, when Frank Sullivan, writing in the *New York World*, announced that after arduous research he had discovered a love story hidden among the tensors which concluded with everybody being happily married, or unmarried depending upon individual preferences.



Courtesy The New Yorker

"PEOPLE SLOWLY ACCUSTOMED THEMSELVES TO THE IDEA THAT THE PHYSICAL STATES OF SPACE ITSELF WERE THE FINAL PHYSICAL REALITY." — PROFESSOR ALBERT EINSTEIN

States had of the pamphlet" and "constituted the first picture by radio to link the two continents." After these plays, the *Times* trumped with an explanatory article by Dr. Einstein himself, incomprehensible to all but a few physicists and mathematicians.

The explanations by different scientists that were garnered in were, in the main, sound and dignified, although somewhat premature, and therefore conflicting. The regrettable omission was the almost total ignoring of the announcement on February 9 by Dr. A. S. Eddington, Plumian Professor of Astronomy at Cambridge, that he had evolved a formula for determining the electrical charge on the electron. According to Norbert Wiener, Assistant Professor in the Institute's Department of Mathematics, this work is equally as important as Einstein's, and the fact that it received so little notice,

ALTHOUGH the editors' efforts at public mathematical education came a cropper, it must be granted them that they left no stone unturned in trying to find out what it was all about. The fact that they failed, came back on their shields, should not reflect upon their Spartan qualities. The *Herald-Tribune* engineered the most spectacular stunt when it had the Einstein paper translated in Germany, its symbols reduced to words, and all of it cabled across, to be turned again into mathematical symbols by Engelbert B. MacDonald, '23, a member of the *Herald-Tribune* staff, who for once found some use for freshman mathematics. The *Evening Post* attempted an "intercontinental radiograph," the result of which must have made Richard H. Ranger, '11, shudder. Although it was hopelessly blurred, it was the "first view that the United

amid all the Einstein furor, indicates how true it is that the name of Einstein rather than the work of Einstein has become front-page material. It has even been charged that a world-wide organization has premeditatedly used Einstein as a kite for its own publicity.

Seadromes

RELAY stations, anchored in mid-sea, have been suggested and recommended by air and naval experts to facilitate transoceanic air travel. As long ago as July, 1927, writing in the *New York Times*, William Hovgaard, Professor of Naval Design and Construction, outlined the design of a great barge-like ship and pointed out that its construction and anchorage would not depart from technical knowledge and methods now at the disposal of aeronautical engineers and naval architects.

Word now comes that construction of a seadrome has been started, based upon the design of Edward R. Armstrong, of Wilmington, Del. Mr. Armstrong, it is reported, has secured the necessary funds, about \$1,500,000, to build the drome, and after completion he proposes to anchor it mid-way between this country and Bermuda.

Plans for the Armstrong seadrome indicate that it, unlike that of Professor Hovgaard, departs from the ship form, being in effect a rigidly connected system of submerged buoyancy chambers and ballast tanks, supporting a platform. In his proposal, Professor Hovgaard wrote:

"The station ship must fulfill certain requirements, the consideration of which leads logically to the principal features of the design. It should be as large as possible, yet not larger than allowed by the available docking facilities so that it can be inspected, cleaned, painted, and repaired as necessary for proper maintenance. It should preferably possess some power of propulsion, capable of driving it at low speed. . . .

"The vessel (see diagram above) should carry a perfectly unobstructed flying deck on which planes suit-

able for the service here contemplated can land and from which they can take off. This deck must be at such a height above the water that waves or spray may not interfere with the operations of the planes, and it must afford a fairly steady platform under all conditions of weather. It should curve well down both forward and aft.

"It is estimated that these requirements can be fairly satisfied in a ship of the following principal dimensions: length in water-line, 950 feet; length over the flying deck, 1,050 feet; breadth in water-line, 120 feet; breadth on flying deck, 160 feet; mean draft about 22 feet with a maximum of perhaps 30 feet near the bow and a reduced draft aft; height of flying deck under water, 50 feet; the

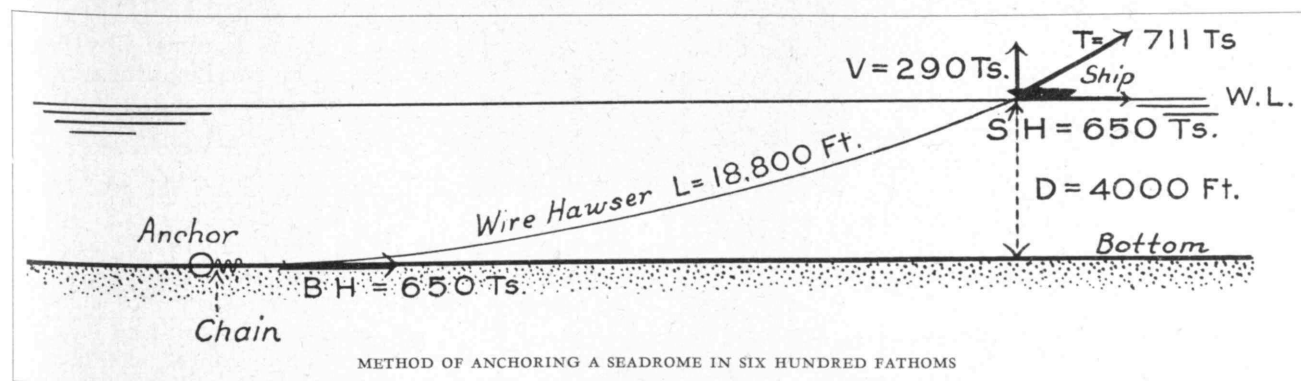
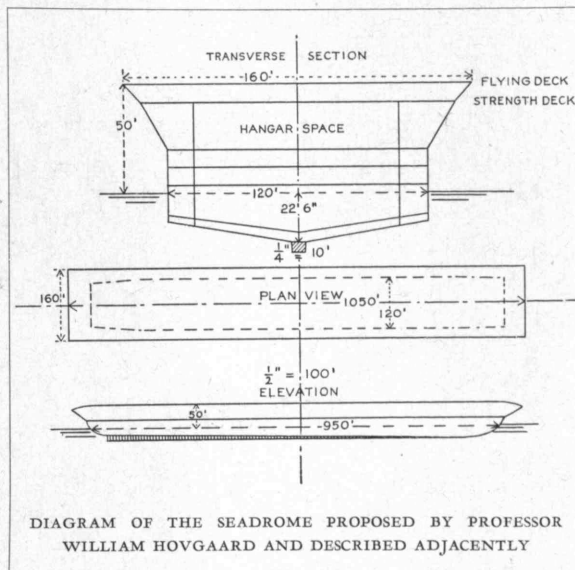
form of the water-line and the flying deck to be practically rectangular, perhaps with a light taper toward the ends; displacement in a full load condition about 55,000 tons.

"A ship of these dimensions, perhaps with a slight reduction in beam, could be docked in the Commonwealth Dock of Boston, and in various other docks on both sides of the Atlantic. It is nearly of the same displacement and length as the *Leviathan*, but is broader and of more shallow draft. Its upper (flying) deck is at the same height above the water as the bridge deck in that vessel.

"The form of the immersed portion of the hull should have the same general shape as the body of a water fowl, relatively deep forward and curving up at both ends so as to avoid the sharp blows of the waves likely to assail shallow, flat-bottomed vessels.

"The structural arrangement need not differ from ordinary shipbuilding practice except in so far as it may be simpler, since the form of the hull may be composed largely of plane surfaces. The only special feature is the extremely broad and overhanging flying deck, which is similar to that of all naval airplane carriers.

"The ship so designed will possess great stability, and when at anchor, head on to the wind, will present an almost immovable platform, as far as transverse rolling is concerned. In heavy weather, there will be a longitu-





Fairchild Aerial Surveys, Inc.

VIEW OF CONSTRUCTION AS IT PROGRESSES ON THE HUGE HUDSON RIVER BRIDGE OF WHICH CASS GILBERT, '80, IS CONSULTING ARCHITECT

dinal or 'pitching' movement, by which the ends of the ship, following the motion of the waves, will swing up and down. The largest Atlantic storm waves, having a length of 500 to 600 feet, are rarely more than thirty feet in height from hollow to crest, and the total vertical swing of the ends will hardly exceed that figure. This, however, will occur only under long-continued severe gales, at which times flying would hardly be attempted."

Professor Hovgaard also suggested a method of anchoring such a ship in a depth of 600 to 700 fathoms. He would employ a single wire hawser of 20,000 feet length with 100 fathoms of four-inch ground chain attached to an anchor of about 30,000 pounds weight.

The Navy's experience with airplane carriers such as the *Lexington* and *Saratoga* has demonstrated the feasibility of planes starting from and landing on flying decks. The Hovgaard deck design is not essentially different from these. Undoubtedly such a relay ship would be useful for mail service, for passenger transport, for meteorological and for oceanographic research, and for marine biological studies. Possibly it will be the next development in over-water flying.

Merger

ZEPPELINS, tunnels and dams are not the only objects being constructed in larger sizes today, for the recent merger of the Guaranty Trust Company and the National Bank of Commerce gives New York a bank with total resources equal to one-ninth of the United States national debt, or a sum equal to the total wealth of the Kingdom of Denmark. Its capital, surplus and deposits aggregate nearly two billions of dollars, exceeding by 150 million the resources of the National City Bank, previously the leader. Except for two English banks, the Midland and Lloyd's, with resources of \$2,380,000,000 and \$2,137,000,000 respectively, it is larger than any other in the world.

Both of the units in the merger are the products of natural growth over a long period of years, aided by timely consolidations with other energetic and successful banking institutions. Each illustrates in practical fashion the expansion trends in American industry, for under the national banking law an institution can lend only ten per cent of its capital to any one borrower, individual or

corporate. As it is today most large corporations have to divide their accounts among several banks but usually adopt one as their chief financial advisor.

The National Bank of Commerce was a quarter century older than the Guaranty Trust Company, having been established under the New York State Laws in 1839 as the Bank of Commerce with an original capitalization of five million dollars. Although the period of depression following the panic of 1837 had not run its course, the country was on the eve of the clipper ship era, and the new institution prospered. It became a national bank in 1865 under the title of the National Bank of Commerce and continued independently until, in 1900, when it merged with the National Union Bank. In 1903 the Western National Bank was added, making the capitalization twenty-five million.

On April 13, 1864, the Guaranty Trust Company was incorporated in New York under the name of the New York Guaranty and Indemnity Company and it operated under this name until January 2, 1896. Two banks, the Morton Trust Company (which in 1900 had absorbed the State Street Trust Company) and the Fifth Avenue Trust Company, were consolidated with the Guaranty in January, 1910. Later the Standard Trust Company of New York combined. Last year the capital was increased to forty million. Since January, 1923, William C. Potter, '97, has been with the Guaranty, first as Chairman of the Board and later as President. He continues as President of the consolidated bank.

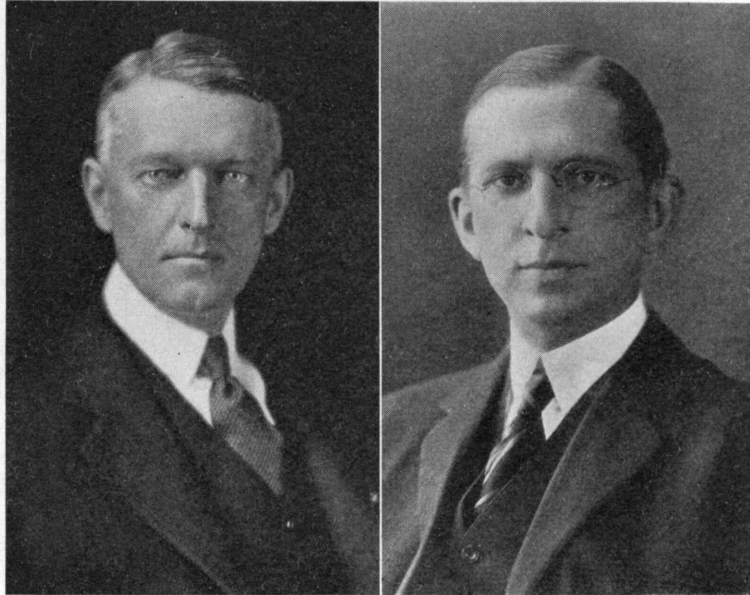
"Orientator?"

SIMULATION of actual flying conditions and the psychological effect to the beginning airman of an airplane in motion are produced by a device developed at the Wright Field Experimental Flying Station after almost a year's tests, it is revealed by Lt. Albert F. Hegenberger, '17.

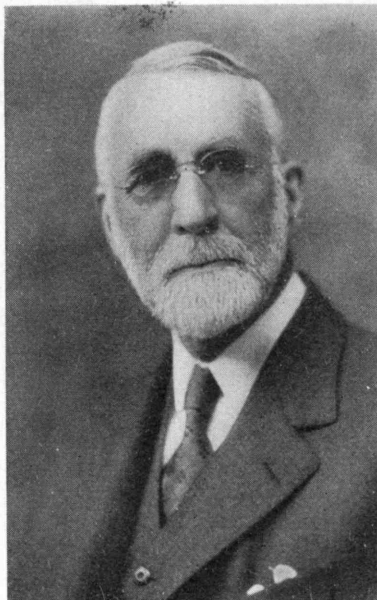
As yet without a technical name but known temporarily as an "orientator" or apparatus designed to accustom the novice to the feel of the plane, the new invention

is producing excellent results and when further perfected may entirely take the place of the "Ruggles" orientator, the standard device of the same general nature that is in wide use today. At a casual glance the "orientator" looks very much like the Ruggles apparatus since it is about the same size and is used in a like frame. However, it has certain marked and revolutionary differences, Lieutenant Hegenberger explains. Whereas the former

device is able to simulate the control apparatus of a plane and contains the actual cockpit, it has neither propeller nor engine. But the new "orientator" has all these things and is thus able to give all the plane's basic movements, such as an up and down lift, a left and right stability, the roar of the engine plus the attendant strong blast of air, and the same loops and turns as are made by an actual plane in the air.



LEFT: WILLIAM C. POTTER, '97, PRESIDENT OF THE NEWLY MERGED NEW YORK BANKS. RIGHT: LAMMOT DU PONT, '01, NEW CHAIRMAN OF THE BOARD OF THE GENERAL MOTORS CORPORATION. BELOW: CHARLES T. MAIN, '76, NEW PRESIDENT OF THE AMERICAN INSTITUTE OF CONSULTING ENGINEERS



Rebel Architecture

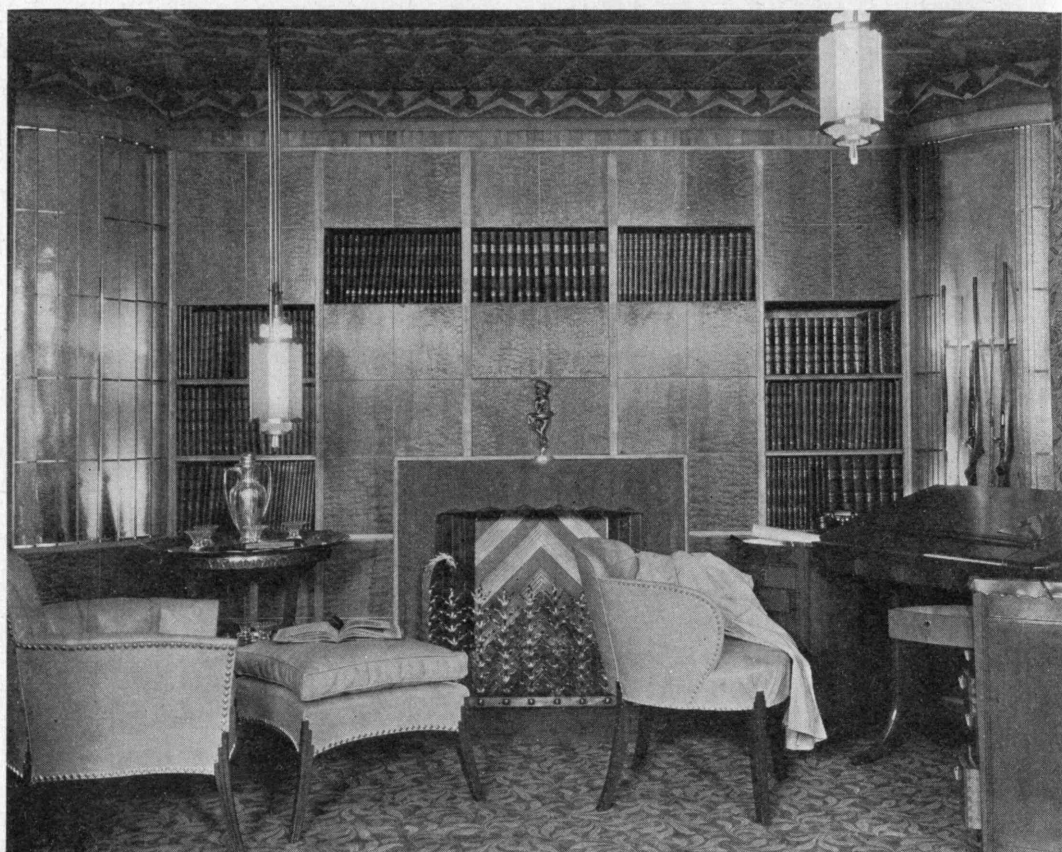
CONSCIOUS striving, too conscious striving, for

a peculiarly American Architecture is growing more and more observable to even the most insensitive observers. Most of the results that obtain from these frantic efforts show a muddled ugliness, the great volume of which must surely be creating for our descendants to laugh about another Reign of Terror more terrible than the gimcrack era. A majority of these exponents of The New Architecture thumb their nose at the past and cast tradition out of the door, an act more classically described as throwing the baby out with the bath.

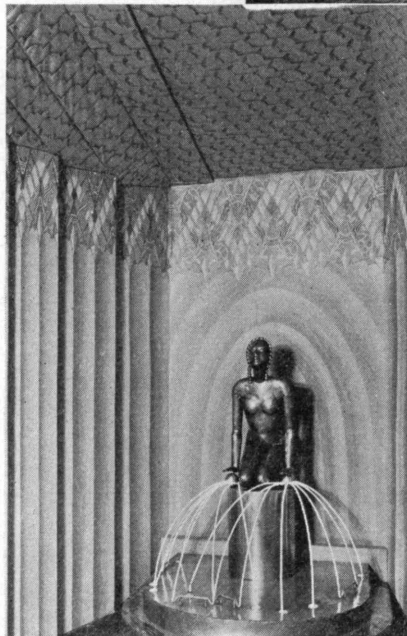
Well in from the lunatic fringe, however, there are some well-grounded workers who realize the absurdity of rebelling against sound tradition. They have been endeavoring with vigor and robustness to inject an evolutionary variation into archi-

itecture, legitimate and sound. For this group, presumably, the Metropolitan Museum of Art has staged for some years what it calls "An Exhibition of Contemporary American Art." The eleventh of these is now on view. It was brought together by the Museum in cooperation with the following: Raymond

RIGHT: DESIGN FOR A MAN'S STUDY IN A COUNTRY HOUSE BY RALPH T. WALKER, '11, EXHIBITED AT THE METROPOLITAN MUSEUM OF ART. BELOW: FOUNTAIN OF LIGHT DESIGNED BY MR. WALKER AND EGMONT ARENS



Courtesy of the Metropolitan Museum of Art



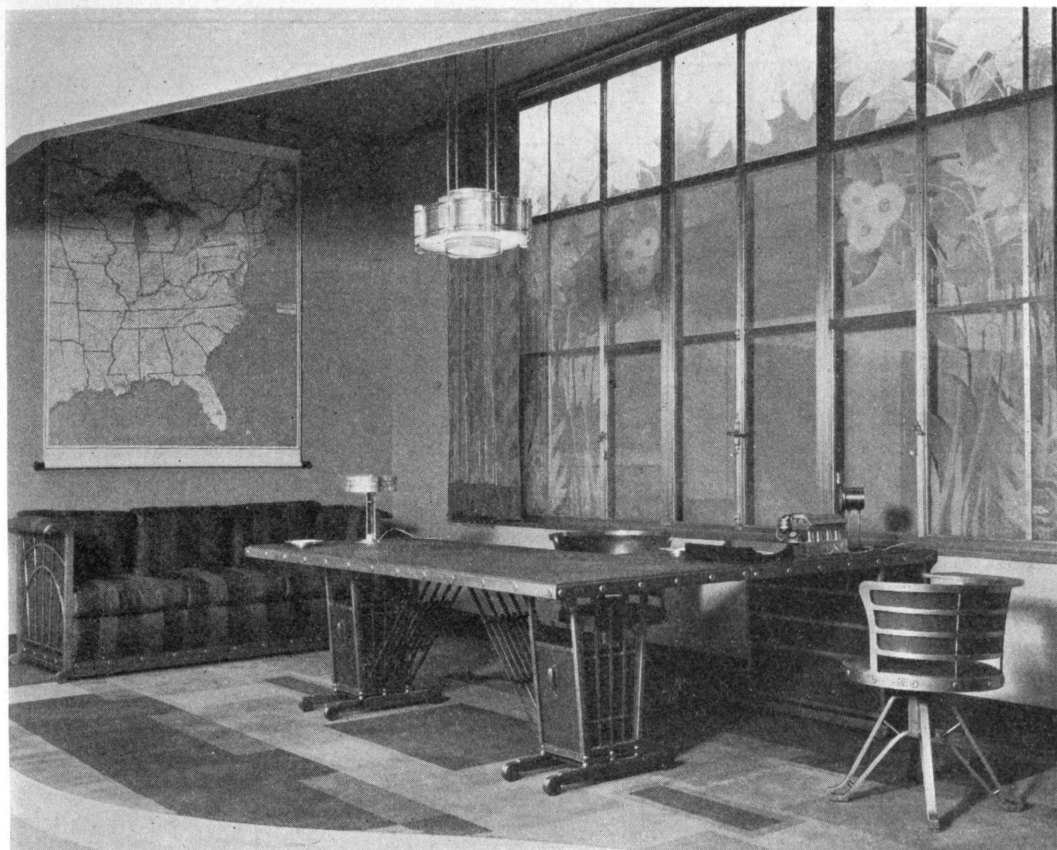
M. Hood, '03, architect; Ely Jacques Kahn, architect; Eliel Saarinen, architect; Eugene Schoen, architect; Leon V. Solon, ceramic designer; Ralph T. Walker, '11, architect; Armistead Fitzhugh, landscape architect; John Well-born Root, architect; Joseph Urban, architect and scenic designer.

Of the business executive's office and the apartment house loggia, included in the Exhibition and pictured on the opposite page, Mr. Hood wrote: "The task of the contemporary designer is first to search for the practical solution of his problem, and then to avail himself of every material, every invention, every method that will aid him in its development. He does not forget that it is his business to fashion the materials he uses into a beautiful form, but he realizes that only by this road can he hope to find the real beauty which will be the harmonious expression of modern life. Especially

must there be acknowledgement of the fact that the machine, as a tool of the designer, has replaced the craftsman in contemporary production, and has, therefore, tremendously influenced modern design. . . .

"This introduction will explain my point of view in the development of the business office and the apartment house loggia. The layout and design of the different elements were controlled by present day requirements. In general, each material has been chosen because of its fitness for the work it is to do, and with regard to economical upkeep and sanitary qualities. Its decorative treatment, then, has been dictated by the capabilities of the machine or process by which it is made.

"The executive sits with his back to the light as people enter. His desk is arranged to receive the proper working light, and at the same time to give him the restful distraction of an outdoor view. Facing him is his secretary's chair, while his visitors may group themselves about the conference table contiguous to his desk at right angles without disturbing his work. The walls and ceilings are covered with fabrikoid, a machine product which far excels in durability, cheapness, quality of surface, sureness of effect, and variety of expression the old methods of plaster, and paint and wood paneling. The furniture is made of aluminum, a material as strong, light, and adaptable for the purpose as wood, but one that is not subject to shrinking, swelling, warping, and the necessity of repeated refinishing. The large window, made possible by modern heating, lights the room with a great area of subdued light, rather than by a small area of intense light. The curtain permits a complete regulation of light and air."



LEFT: OFFICE OF A BUSINESS EXECUTIVE. BELOW: APARTMENT HOUSE LOGGIA. BOTH WERE EXHIBITED AND DESIGNED BY RAYMOND M. HOOD, '03, AT THE EXHIBITION OF CONTEMPORARY AMERICAN DESIGN AT THE METROPOLITAN MUSEUM OF ART

Courtesy of the Metropolitan Museum of Art

His comment is typical of the philosophy behind the exhibition; he keeps in mind that "tradition is the bread and butter of civilization," but at the same time he engages himself to add increments to the tradition in response to new demands and by means of new materials.

Concerning the man's study for a country house, Mr. Walker wrote: "The problem of a room is stated for each individual who thoughtfully creates one. It changes with the individual's viewpoint, and the only lesson it can point is one of personal experiment. The business of a room is first to inclose and house the body, and then to afford escape for the spirit through the mind. It is first of all obvious that were there no utilitarian need there would be no room. In it such machinery factors as economy, efficiency, and selectiveness are those of instruments of use, which are but a small part of the need expressed in the creation of a room; they are wholly physical in their nature and utilitarian in their relationship, and while they condition the life to be lived in the room they do so only as any other instrument or tool has done in the history of man.

"A room is different from a motor car or an airplane in that it is static because of the very inert nature of the materials of which it is built, and is mobile only in the sense of the time necessary for its appreciation. The room, therefore, must not express finality in any sense, but a movement of thought in time — a breaking down of the immediate and the opening up of a mental horizon of widening viewpoints. It should be lacking in sharp contrasts, in primary forms and colors, which are wanting in sophistication and which breed momentary appreciation only. . . ."

Mr. Hood comments more fully on his design for an apartment house. This is, perhaps, the most modern of his rooms exhibited at the Metropolitan Museum. "The adaptability of materials to the open air was a controlling factor in the design of the open-air loggia, which I have imagined as opening off the salon high up in a large city

apartment house. The fireplace, about which the furniture is grouped, is an element even more sociable outdoors than indoors, and is practical if properly arranged. The cast concrete on the walls is more solid than marble, and has a wider range of possible effects. One of the modern, non-corrosive metals, chromium, has been used for the ceiling and overmantel. The furniture is of aluminum, and is covered with fabrikoid on account of its waterproof qualities." Because of great public interest the exhibition will probably be extended.





The T. C. A. Takes to the Air

UNDER the guidance of the flourishing Technology Club of Western Pennsylvania, The Technology Clubs Associated has formulated a definite program for the most ambitious convention of its seventeen years of existence to be held May 3 and 4 in Pittsburgh, Penna., as announced in *The Review* for March. Except for the anemic exhibition at Atlantic City last May, the organization has demonstrated a robust penchant for well-ordered, large scale convocations; Thomas C. Desmond, '09, and the Technology Club of New York sponsoring the initial spectacle in 1927. The *Review*, with anticipatory eagerness, heralds the Pittsburgh meeting in fond remembrance of that one in New York.

Aviation, instead of photoradiograms and talking moving pictures, has been chosen as the keynote of the gathering, the prevailing modes and mores now decreeing that conventions have keynotes, and most appropriately has this choice been made, for in May Pittsburgh is endeavoring to make of itself the cynosure of all air-minded eyes. Contemporaneously with the meeting of the T. C. A. falls the second of the National Elimination Balloon Races in that city, and an air show.

Mr. Maurice R. Scharff, '09, the President of The Technology Clubs Associated, and a candidate for Term Membership on the Corporation (see page 347), and his committee have arranged the convention so that Alumni may attend the National Balloon Races in addition to all of the convention features. One of the city's best airports, Bettis Field, has been secured for some of the events and for the convenience of members arriving by air. The convention opens Friday morning with registration at the Hotel Schenley and a luncheon at which those present will be seated by classes. Transportation will then be provided to Bettis Field in time for the demonstrations there.

A number of Alumni have already signified their intention of arriving by plane and dirigible and a portion of the afternoon will be given over to a reception to these members as they arrive. Arrangements have also been made to have the latest types of planes on the field, and special exhibits of some of the latest scientific aircraft.

Friday evening there will be a banquet and dance at the Hotel Schenley. No lengthy speeches have been planned, but a number of distinguished guests will be briefly introduced. Tentative acceptances have already been received from President Samuel W. Stratton; Edward P. Warner, '17, former Assistant Secretary of the Navy; Major General James E. Fechet, Chief of Army Air Corps; Honorable F. Trubee Davison, Assistant Secretary of War; Rear Admiral William A. Moffett, Chief of the Bureau of Aeronautics of the Navy; Lieu-

tenant Commander C. E. Rosendahl; Lester D. Gardner, '98, Past President of the Aeronautical Chamber of Commerce; Paul W. Litchfield, '96, President of the Goodyear-Zeppelin Corporation; and Lieutenant Albert F. Hegenberger, '17. Plans are now under way for broadcasting this portion of the program over station KDKA.

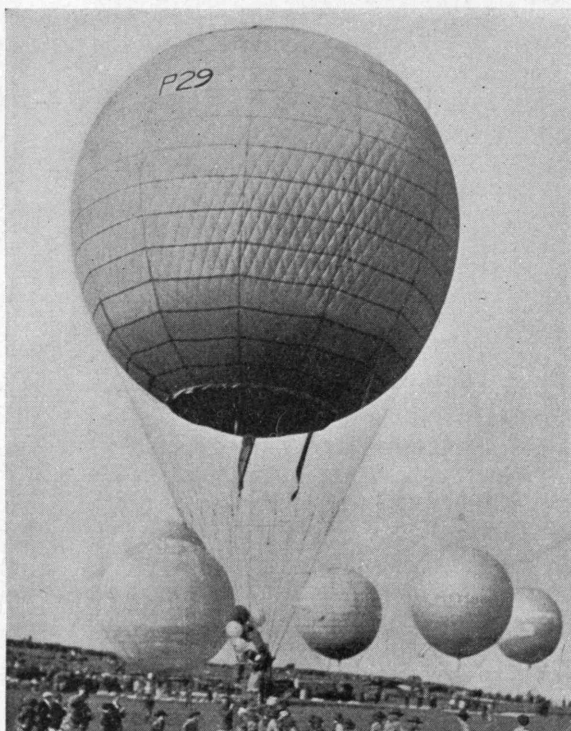
The banquet will also be featured by the first public demonstration of a very extraordinary application to aviation of a recent technical development, which is so new that details cannot as yet be publicly announced. After the banquet there will be dancing.

On Saturday morning the group will meet in a business session, during which they will be addressed by President Stratton, and in which they will elect officers for the coming year. In the afternoon the convention will adjourn to

the National Elimination Balloon Races in the University of Pittsburgh Stadium. On Thursday and Friday, May 2 and 3, the Pitt Stadium will be given over to plane exhibits, stunt flying, parachute drops, and in the evening to aerial fireworks. On Saturday the balloons will be brought out and the busy program will culminate with the departure of the first balloon in the race at 5:00 P. M. (Eastern Standard Time).

Summer Session

LAST month the special "Summer Session" edition of the Institute catalogue came out on time in its usual pudgy, pocket-size format, and forehanded students are now thumbing its 332 pages and speculating on the days and hours they will not have as vacation time during next June, July, August, or September. Before the War a



START OF THE 1928 NATIONAL ELIMINATION BALLOON RACES
AT BETTIS FIELD, PITTSBURGH

student's attendance at summer school might be safely attributed to his making up of work undone. Not so any longer, however. Now the bulging curriculum of nearly every Institute major course, including the five-year ones, overflows into the summer months. Besides, strange as it may seem, many present day students are wishful to remain during the hot weather "anticipating" subjects of the upper years, thus to make room for senior subjects in their junior programs or for graduate subjects in their senior programs.

In addition there have been departures from pre-War tradition in the variety of summer subjects offered. Chief among these has been the introduction of studies of interest to instructors in the high and preparatory schools, and others for technical graduates employed in the industries. To the secondary school teacher the following are available: educational psychology, tests and measurements in education, methods of teaching high school mathematics, physics, chemistry, and biology. Not only have the teachers benefitted (last summer 109 attended, or nearly twice as many as in 1924), but the contacts they have made with members of the Institute's Faculty have done much to set at rest certain popular misapprehensions of Technology methods, such as the alleged "coldness" of the Institute and the far from infrequent belief that high school graduates should not be sent to Technology until they have spent one or more years at a college "getting adjusted."

For engineers and other technical men employed by various industries the Department of Electrical Engineering introduces this year a colloquium on power circuit analysis and a series of lectures on the organization and administration of public service companies. Fuel and Gas Engineering and the Department of Mechanical Engineering each offer three special new subjects. One of these, for example, will deal with the advanced testing and examination of materials and will embrace physical metallurgy, photoelasticity and radiology. Laboratory opportunities for advanced graduate study and research are, as in the past, open both to Institute and non-Institute students, and the course in applied colloid chemistry, conducted so successfully last year by Ernst A. Hauser, non-resident Associate Professor of Colloid Chemistry, is to be repeated. All in all it is a Summer Session program full to overflowing. The Institute plant never closes down.

Whoopee

OPEN House started in 1923 as a niche on the Institute calendar and has since taken on the aspect of a chasm second only to midyear and final examinations. It falls, chronologically and in character, somewhere between St. Valentine's Day and the late spring baby chick and incubator show. For 1929 it is to be held between noon and midnight on April 27.

No one questions the value of Open House although of late years advertising ballyhoo has crept in. It is a day when staid members of the Faculty are inveigled into making whoopee for awed and uncomprehending laymen. Given a tank of liquid oxygen, a basket of frankfurters and some roses even the most bashful instructor can hold an audience spell-bound with the magic of fireless "cooking" whereby wienies and petals take on a hitherto unimaginable brittleness.

Small wonder, therefore, that Open House calls forth the best efforts of the Instructing Staff to make the brave showing which they do. And, any excuse to entice the vast hordes of humans that do come to plod down corridor after corridor and through laboratory after laboratory is worth while. This in itself is a prime triumph, for the per capita ignorance of what goes on inside the Institute's plant is greater nowhere than in Boston and its satellite communities.

Various estimates are forecast as this year's attendance figure. One may be certain it will exceed

10,000 (the lowest guess audibly expressed for any Open House) and that it will be somewhat less than the trumpeted 30,000 which is the fanciful number conjured by several enthusiasts. Perhaps 18,000 will be about right. Minions of the Superintendent of Buildings posted at entrances last year armed with tally registers counted a somewhat higher number than this. They, however, made no deduction for visitors who came early without bringing lunch baskets and were perforce obliged to go out and eat.

Now 18,000 assembled in any one place is no mean crowd. It is, for instance, twice as many as the number of troops the Leviathan transported each trip to France and it is nine times as many as sat down to the Jamboree Dinner at the last All-Technology Reunion. In fact numbers, unless it be the question of limiting the total admissions, do not enter as a problem of Open House. There is

PROGRAM

1929 CONVENTION TECHNOLOGY CLUBS ASSOCIATED PITTSBURGH, PENNA.

FRIDAY, MAY 3, 1929

MORNING: *Registration at Hotel Schenley*

NOON: *Luncheon — Hotel Schenley (Members seated by Classes)*

AFTERNOON: *Bettis Field, Reception for Alumni arriving by air and demonstrations of aeronautical equipment*

EVENING: *Banquet and Dance, Hotel Schenley
Introduction of prominent guests, broadcast by KDKA, spectacular scientific demonstration, (details to be announced later)*

SATURDAY, MAY 4, 1929

MORNING: *Business Meeting, Hotel Schenley
Address by President Stratton, Annual Election of Officers*

AFTERNOON: *Adjournment to National Elimination Balloon Race and Aeronautical Exhibit in University of Pittsburgh Stadium*

no need, therefore, to import extra stage properties to bolster up the show. Moreover, with all the resources the Institute has in the way of mechanical, hydraulic, electrical, aeronautical, machine tool, optical, x-ray, chemical and other laboratories there exists a wealth of local material. This is the commendable attitude of this year's committee and one may expect no repetition of the practice of previous years when certain corners of the Institute were turned into exhibition booths for commercial products. Open House is one day of the year when the Institute stops hiding her light under a bushel. It is indeed an Institute party and she needs call upon no outside organizations to furnish a tail for her kite.

In their proper place showings of commercial products at the Institute have their proper place. So do exhibitions of collections of a scientific or cultural nature. Nor does the use of Institute buildings for trade congresses, demonstrations of new and untried inventions, or other honest, though frankly commercial, ventures seem inappropriate. But a strictly Institute function is not their proper place.

A. A. Nominations

MEMBERS of the Alumni Association have by now received the annual ballots containing the names selected by the Nominating Committee to fill the nine offices of the Alumni Association which yearly become vacant. Together with these ballots were mailed nine other names (see next page), candidates for Term Membership on the Corporation.

From this slate the Alumni body politic selects three for transmittal to the Corporation for formal election by that body. As the successor to Alexander Macomber, '07, now the President of the Association, the man presented is Paul W. Litchfield, '96, President of the Goodyear Tire and Rubber Company, Akron, Ohio. In 1926, Mr. Litchfield was reelected for his second five year term on the Corporation, having previously served from 1918 to 1923. He brings to the Presidency of the Association, therefore, a knowledge of the Institute derived from active participation in its administration. It was in 1926, too, that he was elected President of the Goodyear Tire and Rubber Company, following a period of service there of twenty-six years. He supervised the making of the first Goodyear automobile tire, and since that time practically every department of importance has come under his personal supervision.



PAUL W. LITCHFIELD, '96. AS THE SOLE NOMINEE, HE WILL BECOME PRESIDENT OF THE ALUMNI ASSOCIATION FOR THE 1929-1930 TERM BEGINNING JULY 1

Mr. Litchfield is also President of the Goodyear-Zepelin Corporation and has been very active in furthering the developments of lighter-than-air craft in this country. He has contributed generously to the Welfare Committee of the Goodyear Industrial Assembly, and a constant desire to help and encourage, to recognize and reward employees of his company has characterized his administration.

The new Vice-President, who will take office with Mr. Litchfield; will be Francis J. Chesterman, '05, President of the Technology Club of Western Pennsylvania. The retiring Vice-President is George E. Merryweather, '96, of Cleveland, Ohio. The Senior Vice-President, elected last year, is Harold B. Richmond, '14, and in that capacity, by virtue of his local residence, he will have active charge of the Alumni Council and the affairs of the Association that cannot be supervised by Mr. Litchfield from Akron. The two new members of the Executive Committee are Bradley Dewey, '09, President of the Dewey and Almy Chemical Company, and Charles E. Locke, '96, Associate Professor of Mining and Engineering and Ore Dressing at the Institute. The two retiring members of the Executive Committee are Allan Winter Rowe, '01, and Frederick Bernard, '17.

Five more names are on the annual ballot. They are the Representatives-at-Large on the Alumni Council: Frank F. Bell, '10, of Dallas, Texas; W. Malcolm Corse, '99, of Washington, D. C.; Roswell Davis, '05, of Middletown, Conn.; Horace Johnson, '01, of Honolulu,

Hawaii; and Denton Massey, '24, of Toronto, Canada.

Ballots are due back in the Alumni Office by April 20. Announcement of the result of the voting will be made soon thereafter. Since only one nomination is made for each Alumni Association office, only the Corporation nominees listed on the next page are contingent upon the balloting.

The new plan for the election of officers and term members of the Corporation, embodying an electoral college made up of class representatives of the Alumni Council, was, it is recalled, unacceptable as presented to the Council, and the plan was returned to the Committee for further development. The voting this year, consequently, proceeds on the same basis as it has for the past several years. If alumni voters exhibit greater interest this year in their franchise, perhaps the present plan will not be altered. Otherwise a change will be imperative.

Corporation Nominees

NINE men each year are chosen by the Nominating Committee and presented to the constituency of the Alumni Association for it in turn to select three from the nine as candidates for Term Membership on the Corporation, legal governing body of the Institute. The Corporation, now largely composed of Alumni, invariably has accepted and welcomed these nominees. The group this spring from which the Association chooses the three who will take office for five years beginning July 1, are composed of the following, arranged by class seniority:

Left, from top to bottom

CALVIN W. RICE, '90

National Secretary, American Society of Mechanical Engineers, New York

WILLIAM S. FORBES, '93

President, Forbes Lithograph Manufacturing Company, Boston

WALLACE C. BRACKETT, '95

Charles G. Edwards Company, New York

GEORGE W. TREAT, '98

President, E. H. Rollins and Sons, Boston

Bottom center

PHILIP W. MOORE, '01

Vice-President, Poor and Company, Chicago, Ill.

Right, from top to bottom

LOUIS S. CATES, '02

President, Utah Copper Company, Salt Lake City, Utah

HAROLD V. O. COES, '06

Ford, Bacon and Davis, Inc., New York

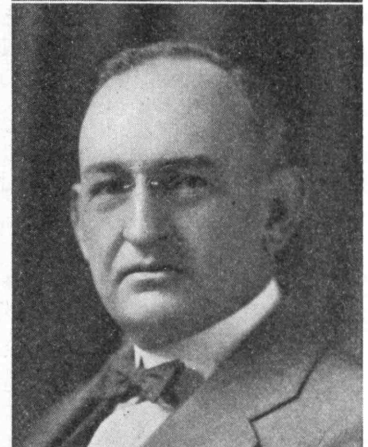
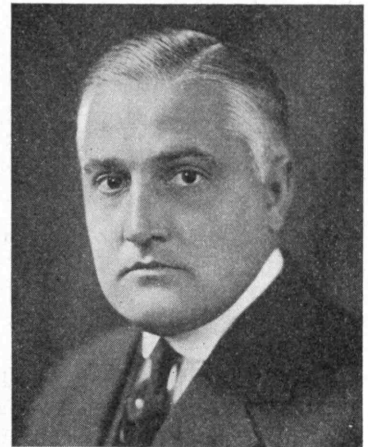
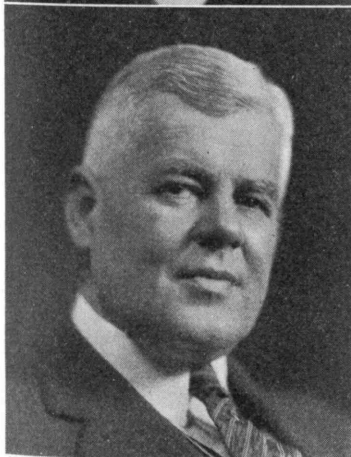
ALEXANDER MACOMBER, '07

Consulting Engineer, Macomber and West, Boston

MAURICE R. SCHARFF, '09

Consulting Engineer, Main and Company, Pittsburgh, Penna.

Photographs of Messrs. Brackett, Treat, Macomber, Cates, and Moore by Bacbrach, Hoyle, Notman, Underwood and Underwood (©), and Kellogg respectively.



*Diluted Data on Vocational Guidance*

BORN THAT WAY, by Johnson O'Connor. \$6.00. 323 pages. Baltimore: *The Williams and Wilkins Company*.

FOR several years Mr. O'Connor has been carrying on a remarkable series of researches in the laboratories of the General Electric Company at West Lynn, and this book is based on these studies. After much experimentation, five special tests or "worksamples" have been selected, and with these the author has tested thousands of workers, and has then followed up their performances in the factory. Some of them were placed according to test results; others not.

The tests are simple enough: (1) placing metal pegs three in a hole in 100 holes, for "finger dexterity;" (2) assembling a rectangular block, sawed lengthwise vertically and horizontally on curved lines into nine irregular sections, for "mechanical aptitude;" (3) giving immediate responses to a selected list of words, for "personality;" (4) with tweezers placing pegs into holes, for "tweezer dexterity;" (5) checking pairs of numbers as being the same or different, for "clerical aptitude."

Some of the tentative discoveries obtained with these tests may be stated as follows:

1. There are significant individual differences, which persist even after long periods of practice, training, and factory service.
2. There are significant correlations between specific tests and success in specific jobs.
3. Almost any person can do well in at least one test and in one kind of job within the plant.
4. Worry, irregularity, perhaps accidents, sometimes mental difficulty, come from trying to succeed at an impossible task; hence the importance of scientific selection.
5. The person who does a test quickly is very likely to do it accurately; the proverb "slow but sure" is false.
6. Not only mechanical aptitude, but constructive imagination such as engineers need, is tested by the "wiggly block."
7. New data are given to show that the objectively minded person responds to common words according to a popular pattern of association, while the more subjective person's responses are apt to grow out of his special, individual experiences.

These tests, the author's data, and these conclusions, are so important and interesting that the present reviewer most sincerely hopes that Mr. O'Connor will give us a better report on them: a book in the form of an engineering report, or of a scientific account of a psychological research. The present volume is neither. It is a bad mixture of genuinely objective data on the one hand, with speculation, sweeping statements, vain philosophizing, and unproved biological theory, on the other. It would

almost seem as if the engineer had turned over his data to be "edited" by a too-enthusiastic believer in chromosomes, heredity, and a mechanistic conception of life.

Thus, in spite of the fact that every correlation in the book is a positive one, the writer accepts the theory of fixed types of mind and ability, and the theory of compensations of ability, both unproved by these or, so far as the reviewer is aware, by any other data. There are individual differences, but these should not have been magnified to prove more than they can. The difference between three minutes and six minutes in assembling the block is said to be like that between a man six feet tall and another only three feet tall. But here the author fails to see that we have established no zero point in block assembling from which to measure our differences. Psychological analysis might conceivably establish the fact that a vast background of sensory discriminations, experiential factors, and reasoning processes is needed to put the block together within half an hour, and that the person who can do it in one minute simply has a very small increment of ability over his fellow, no matter how significant these differences may be for the purposes of the personnel department of industry.

Specific instances of the questionable use of figurative language, faulty analogies, and unscientific mixtures of data and rhetoric will be found on pages 22, 24, 90, 115, and 151. On pages 32, 59, 68, and 84 the book tends to suggest denials of or doubts concerning the implication in the title of the volume, indicating that our knowledge of early conditioning of abilities and interests is too limited for us to be dogmatic. On page 91 it is indicated that three tests measure the wrappings of the soul, but on the opposite page and in Chapter II it is suggested that the reactions used in performing the tests are probably predetermined in the germ cell and are automatic rather than controlled by consciousness. Statements on pages 89, 94, and 101 contradict or exaggerate the correlation figures. Several of the chapter titles are inappropriate for a scientific work.

A scientific report on these data might well begin with Appendix B, which describes the apparatus and its use. Next might follow some of the material beginning now on page 21, which shows the results obtained and their application to selection for factory service, together with relationships to success in the factory. Next should follow what is now Appendix A, describing various combinations of abilities. These combinations or integrated scores are of greatest importance to those of us who hope to find a "battery of tests" (though battery is the wrong word because cells are all alike) which will indicate the main line of work in which a boy or girl is most likely to succeed. The author gives neither the figures nor the reasoning on which his diagnoses and prescriptions are based, and an expanded and elaborated report on these matters would

be extremely valuable. We need also to know how the large number of callings mentioned, professional and other, were analyzed to fit them into the scheme of guidance based on the eleven worksamples used.

We need further discussion, also, on the author's proposition, which the present reviewer is inclined to believe, that a worksample slightly dissociated from actual factory or office production is better for measuring aptitude than a trade test taken from an actual job.

There are several steps in a person's vocational progress: discovery of ability and interests, studying vocational opportunity, choosing one line of work, securing training for that work, getting a job, readjusting and securing promotion. The researches of Mr. O'Connor bear significantly on every one of these, and the contributions of his objective findings are a welcome addition to the difficult work of vocational guidance.

JOHN M. BREWER

Hero

JAMES WOLFE, MAN AND SOLDIER, by W. T. Waugh. \$5.00. 333 pages. New York: *Louis Carrier and Company*.

OF THE British commanders who figure in the colonial history of North America none more signally achieved fame than General Wolfe. His victory over the French under the Marquis de Montcalm at the Battle of Quebec in September, 1759, when both leaders lost their lives, marked the end of France's territorial aspirations on this continent.

In the 1700's the British Army was quite a different affair than in modern times, and the portrayal of Wolfe's career as told by Professor Waugh necessarily yields a deal of items interesting to students of military and naval life. Wolfe, for example, entered the service at fourteen, was a Captain at seventeen, had a regiment at twenty-two, became Quarter-Master General for Ireland at thirty. At Quebec he was still less than thirty-three, and his three brigadiers were less than forty. Because his pay as Major-General and leader of the Quebec Expedition was but £2 a day, before embarking from England he was obliged "diffidently and apologetically" to apply to the War Office for help in view of his costly preparations, receiving a modest grant of £500. Yet his mother, in spite of the victory he attained, had trouble after his death in collecting from that same War Office the pay due him. Perhaps she was not blameless for this difficulty as she seems to have nagged her son continually.

The musket in general use at the time was the smooth-bore, muzzle-loading flintlock known as "Brown Bess." A skilled rifleman could fire three shots a minute with it, and 100 yards was its effective range. Nor was the superiority of the British Navy, on whose aid the Quebec Expedition relied, so complete as we are apt to assume. "The men were ill-paid, ill-fed, ill-cared for. The amount of sickness among them was appalling; there was no medical examination of recruits. . . . Brutal punishments were customarily inflicted for minor as well as major misdeeds. Since the officers were mostly recruited from the hard school of the ranks, the "British quarter-deck knew its job and did it." However, of the 184,893 seamen and marines employed in the Seven Years' War, only 1,512 were killed in action or by accident, while 133,078 died of sickness or were "missing," mostly deserters.

Political preferment had much to do with Wolfe's promotions, yet he seems withal to have been a careful student of military strategy and tactics. What was more uncommon for that day, he took an interest in the lives and tribulations of his men, was considerate of fellow-officers, and by study and self-analysis endeavored to merit whatever promotion came his way. His father was an army officer and thus obtained a start for him. At first he saw service on the Continent in Flanders and Germany. Then as aide-de-camp to "Hangman" Hawley he was with "Butcher" Cumberland in April, 1746, at Culloden Moor, where "Bonnie Prince Charlie" and the Stuart cause were irretrievably ruined. Years of garrison life in Scotland and England followed until in 1758 his opportunity came at the siege of Louisbourg, the great French fortress commanding the North Atlantic. Largely due to his record in that successful venture, Pitt gave him the Canadian Expedition; and the interval between February 17, 1759, when he sailed from Spithead, and the following September 13 when he fell mortally wounded on the Plains of Abraham transformed Wolfe from the status of a competent youthful general to that of an immortal national hero.

H. E. L.

Pioneering in Scientific Education

HISTORY OF THE SHEFFIELD SCIENTIFIC SCHOOL OF YALE UNIVERSITY, by Russell H. Chittenden. 2 volumes. \$10.00 x+298 and x+302 pages. New Haven: *Yale University Press*.

THE industrial revolution, new scientific discoveries of the time, and the unwillingness of conservative college officials to concede to science a place in their curricula all contributed to the rise of the scientific and technical schools during the three middle decades of the nineteenth century. Both the Sheffield Scientific School and the Institute had their beginnings then, and the two grew up side by side. This alone justifies the giving of our attention to a history of the Scientific School, but there is, in addition, the fact that Francis Amasa Walker, the President-Builder of the Institute, was a member of its faculty. There both he and Daniel C. Gilman, whose genius made Johns Hopkins University, received training that undoubtedly had an important influence upon their contributions to American education.

Late in the summer of 1846, the Yale Corporation authorized the appointment of two professors: one of "agricultural chemistry and of animal and vegetable physiology," and the other of "practical chemistry." Undergraduate members of the College were barred from receiving instruction in the new subjects, and the resolutions specifically provided that none of the existing funds of the College were to be used to support the new professorships. The same academic year saw the first announcement of the Lawrence Scientific School at Harvard University, and in the previous spring, William Barton Rogers worked out his "Plan for a Polytechnic School in Boston" in which he outlined the scheme of the Massachusetts Institute of Technology as it is carried on today. The "Plan" was not, of course, to materialize for some fourteen years.

(Concluded on page 382)



The Grab Bag

ROBERT BENCHLEY'S aphorism that a classical education is one that has no classes after noon on Friday and none before eleven in the morning is an all too forceful reminder that Technology is not an institution of classical learning. Technology men have been known to start work at nine in the morning and work all day Saturdays. Yet more than three hundred Technology men found time to attend the Annual Alumni Dinner on February 16. Just for the fun of it The Editors collected some figures on class attendance which may contain errors. Seven men were present in the Classes from '68 to '79, of which '75 led with two members. Let us also add that Bobby Richards was happily present. The Classes from '80 to '89 had thirty-two men present, six of whom must be credited to '86. Between '90 and '99 thirty-five men were present, six of whom were in the Class of '90. Between '00 and '09 were seventy-six men, the Classes of '00, '02, '05, and '06 tying with ten men apiece. From '10 to '19 were present sixty-four men, the Class of '17 leading with fourteen men. Naturally the later Classes led in numbers, 106 being present in the Classes of '20 to '28. Of these, '21 led with eighteen men. Seven other Classes not mentioned above had ten or more in attendance. These were '11, '22, '23, '24, '25, '26, and '27. Accounts of the dinner and the names of some of those present will be found in most of the notes from the classes in this issue.

The work of both Professor Gaetano Lanza and Wilfred Lewis is reviewed in the '75 Notes. To Professor Lanza goes the credit for being the father and creator of the Mechanical Laboratory in Rogers Building. This achievement of his was recognized, at the instigation of Wilfred Lewis, by the placing of a brass memorial plate from the members of the Class of '75. Wilfred Lewis also presented a replica of the gold medal given Professor Lanza by the University of

Virginia, the diploma of knighthood given Lanza by the King of Italy, and the Lanza portrait in the Department of Engineering. — In 1923 The Review published several pictures with comment taken from a book by Gelett Burgess '87 on table manners. From that topic he has advanced to a more important one. The '87 Notes claim that he is now lecturing to the women of Paris on why men hate them. Attention is called to this unusual outcome of an engineering education. — A recent exhibition calls attention to a Technology etcher who has chosen for his dry-points chiefly French subjects. Cadwallader Washburn is a member of the Class of '93.

Professor Locke seems to be able to find any number of '96 men who are willing to write copiously and amusingly of their travels. The feature for this month is a '96 man who became the impromptu entertainer on his transatlantic steamer, giving him the opportunity to play tricks on his fellow passengers. His descriptions of his travels in Italy and Africa give an impression of the discomforts of dirt, cold, and confusion that he encountered, factors which are usually omitted in accounts given by returning travelers. His trip on the desert by camel reads so much like a movie scenario that only the boom of the big organ and the uncomfortable chair seem lacking. — When a man who has been in Spain almost continuously for twelve years begins to write about conditions there the Class of '97 Notes take on new interest. Particularly does he comment on the lack of stability in the new form of Directorate government and the improvement of motor-ing roads. — From another corner of the earth, Seattle, comes news of a '99 man concerning projects contemplated largely for the promotion of the fish canning industry. Keen competition in the Pacific Northwest is forcing the improvement of natural facilities.

The prize account of the Annual Alumni Dinner comes from the pen of Allan W. Rowe, Secretary of the

Class of '01, to whom, for various reasons, the palm has so often been awarded. Two lonely, dejected '01 men, playing Faith and Charity, entreat the attendance of someone to play Hope at their next sad meeting. A little detour by this Secretary into the fields of crime shows that its evolutionary tendency may afford a solution for the next Dormitory Fund Committee. — The Secretary of '05 has turned Jason, wandering in search of the Golden Fleece of Class Notes.

The poor, overworked, Assistant Secretary of '12 dreamed a happy dream of the Twenty Year Reunion at Palm Beach with 112 men present. Three years will prove the truth of his dream. — Children burgeon in nearly every paragraph of the '14 Notes. Only one, however, slid under the six months ruling rope. — The Class of '15 dinner in New York was a hilarious but carefully censored affair. The Editors had the pleasure of seeing the beautiful engrossed memorial to be presented to the wife of the late Howard C. Thomas by the Class of '15. A black pin seal folio lined in white moiré holds vellum uniquely lettered and illuminated. It is a work of art and an act of devotion that should be very pleasing to his wife. — A member of the Class of '19 got into the newspapers for resisting a holdup. "I'll Get By" was the tune he happened to be whistling when he was called upon to remove the two men in his way. Thanks to football tactics he got by and resumed his whistling. — Afghanistan is featured by a member of the Class of '23 who was one of the few foreigners left in Kabul after recent revolutionary activities forced his wife to leave by British Army plane. Harems are not in style any longer, due to the attempts of the present king to modernize his people.

Either there is more news from the classes or personal mention of delinquent secretaries is having good results. Only four Secretaries have failed to get news for the issue, and they, with one exception, have excellent records for the year. News

for the Class of '95 should be sent to Luther K. Yoder at the Chandler Machine Company, Ayer, Mass. Frederic A. Eustis, Secretary of the Class of '03, has for his address 131 State Street, Boston, Mass. The Secretary of '21 is Raymond A. St. Laurent of 225 Cleveland Avenue, Whiting, Ind. The Class Secretary of '22, Eric F. Hodgins of 8 Arlington Street, Boston, Mass., has not yet published his resignation. He has had no notes since July 1928. Those, however, are still fondly remembered.

The birth rate for this month includes only girls. In a total of six girls, the Class of '18 reports three, and the Classes of '05, '14, and '25 one apiece.

Deaths

Further mention of the following men, recently deceased, may be found in the notes of their respective classes:

VICTOR I. CUMNOCK '87. Died on January 21, 1929 at Lowell.

WILLIAM ESTY '93. Died on July 6, 1928. Was Professor of Electrical Engineering at Lehigh University since 1901, and a writer of articles and textbooks.

FRED B. FORBES '93. Died on January 26, 1929. Was a chemist in the Massachusetts Department of Public Health since graduation.

GEORGE M. HAWES '93. No date given.

JOHN P. LABOUISSIE '93. Died on September 24, 1928. Was manager of the cotton brokerage firm, Alexander Eccles and Company in New Orleans.

WILLIAM S. RESOR '93. Died on August 10, 1927. Was statistician in the engineering department of the Cumberland Telephone and Telegraph Company of New Orleans.

WILLIAM E. COTTER '97. Died on November 8, 1928.

KATHARINE RAND '27. Died on February 19, 1929. Her death was due to tuberculosis. She was graduated from Wellesley College in 1924 with the degree of B.A., and received her Master's degree from Technology in 1927.

'75 For forty-seven years, the Class of '75 has held an annual dinner meeting. On January 26 it was held at the Engineers Club, Boston. Atkinson, Dow, Hibbard, Homer, Wilfred Lewis, and Warren reported "present," and Bowers, Bush, Eddy, Lyman, Nickerson, and Prentiss sent greetings that they were with us in spirit. It was the first annual get-together that Bowers has missed, a reminder of oncoming years.

After the minutes of the last meeting were approved, the Secretary announced that the allotment of \$3,500, requested from the Class by the Alumni Dormitory Committee, was made good. It was subscribed by ten members; not a bad showing in view of the fact that only twenty-six who were associated with the Class are known to be living. The Register of Former Students has the names of sixty-eight who were supposed to be alive the first of the year, but of these, forty-two have failed to reply to urgent letters of the Secretary.

Any mention of the Dormitory Campaign brings Goodale to mind, for he was especially desirous of having the full quota for the Class in hand at this time. His absence was the only gloom of the evening. On December 1 in his room at the Lenox Hotel, Boston, he was taken by a malignant malady which the doctors were unable to define. Soon acidosis developed, which was cured; then pneumonia made its appearance and that too was miraculously dispelled. Four times the feeble life-spark all but went out to be revived, surprisingly. David Goodale, his brother, who has been in constant attendance, called during the dinner at the Engineers Club with the glad tidings that "Charles is resting peacefully and Dr. Stevens has hopes of

his recovering." This message was welcomed and the Secretary was instructed to convey the love and sympathy of the Class to the patient. Goodale seldom failed to attend the '75 reunions, crossing the Continent, traveling 2,500 miles bringing cheer. As these notes go to press it is nearly twelve weeks since he was stricken and he continues to live. Dr. Stevens says that in his thirty-five years of practice he has never known one of Goodale's age to possess such vitality.

President Hibbard reviewed what Wilfred Lewis has done in assembling, framing, and placing the replica of the gold medal awarded Professor Lanza by the University of Virginia, with the diploma of knighthood bestowed on him by King Emmanuel III of Italy, under the Lanza portrait in the office of the Department of Mechanical Engineering. It is well to recall that Professor Lanza was the father, the creator of the Mechanical Laboratory, the first of its kind, which has reflected renown on Technology. Hibbard explained that Lewis had gone to considerable expense for which he desired the Class to have the credit and he moved that the Treasurer be instructed to send him a check for \$50 with appreciative thanks. The motion was seconded, carried, and so ordered. The check was mailed and in a few days the Treasurer received Lewis's check for \$50 with the notation, "for various sundry delinquencies during fifty-three years." Needless to say that no member of '75 has been more prompt in paying all dues and joggors for dollars; hence the humor in "delinquencies" here cited.

Professor Miller, Head of the Department of Mechanical Engineering, had called on Lewis for an appropriate wording for a brass plate for this Lanza memorial. Lewis in turn wrote the

President and Secretary to help decide this. It was left for the Class to act and the following legend has been approved and adopted: "These tokens are placed here in affectionate memory of Professor Gaetano Lanza by members of the Class of 1875, the first pupils taught by him at M. I. T."

Nickerson writes that he has resigned from active charge of the Gillette Company, but continues a director and will keep up his interest in the Institute and Boston University. He was missed at the Alumni Dinner and the '75 Reunion, having taken train for California the middle of January. Prentiss and Mrs. Prentiss had transportation booked for Olympia Beach, Fla., and planned to return to Holyoke the first of April. The day after they arrived at Olympia they were greeted by real summer, 84° with plenty of humidity, thank you!

Hibbard and Mrs. Hibbard were passengers on the S.S. *Transylvania* out from New York on January 30 for the Mediterranean cruise *de luxe*, to be away ten weeks. They should have received letters and Boston papers at Jerusalem, Cairo, Naples, and Paris.

At the Annual Alumni Dinner on February 16, Hotel Statler, Boston, at the table for the honorable ancients were Richards '68, Allen '72, Chase '74, Dow and Warren '75, and Williston '77. Two years ago, if memory is not at fault, eight of the classes of '68-'74 graced the head table and an equal number of '75-'78 had their feet under the next table. So runs the record of the hurrying years. The verdict of these seven ancients was of high approval of the dinner and the doings of the entire evening. We favor the Statler for next year. — HENRY L. J. WARREN, Secretary, Greenfield Club, Greenfield, Mass.

'87 Our esteemed Class Treasurer, George Otis Draper, under date of December 29, writes very interestingly of his travels in this and other countries, as follows: "Since last February I have visited some seventeen countries and twenty-five states. I found Gelett Burgess in Paris lecturing to women on why men hate them. E. G. Thomas showed me all over the scale works at Toledo. Sturges and Shortall made Chicago interesting, although there were two machine gunnings and two bombings the first night of my visit. Shepard gave me a look at the Mint in Denver, and a lunch at the University Club. Totman entertained with rare discretion. At Los Angeles Farwell damned the Boulder Dam project, explaining how much better he could arrange to solve the problem.

"My earlier course took me all over North Africa, with auto rides into desert spaces. In Europe I flew 1,800 miles over five countries and back. I have just returned from 9,400 miles of autoing to the Coast and back to Florida, where I shall pick up the car again. To those who cannot understand the use of so much time, I will say that the textile business got so bad it was cheaper to quit. For the benefit of posterity, I will say that my conclusions from late experience are that airplanes are far from perfect, and that legal limitations should be put on the length, width, weight, and load of all busses and trucks. They cannot be controlled promptly, and lie wrecked all along the highways. It might also be a good idea to teach the English language to the people of Montenegro. I found them difficult."

George W. Patterson, Professor of Engineering Mechanics at the University of Michigan, has been appointed Associate Dean of the College of Engineering there. His son, Robert C. Patterson, is Secretary, of the U. S. Legation at Bucharest, Roumania. Before his transfer to the diplomatic service he served as vice-consul and consul at Liverpool. During the World War he served in France with the Fifth Field Artillery, First Division, A. E. F. — Franklin Brett writes that he is engaged in planning an airport for Duxbury, and extends a hearty invitation to any of the Class who may be down that way to drop in. The writer assumes this to apply to automobilists as well as to aviators.

The Class of '87 was represented at the Alumni Dinner by Bryant, Lane, and Cole — not a large delegation, but a worthy one. Cole, by the way, is at present assisting Class President Taintor at his office at 53 State Street. — Howes writes that he is feeling pretty well, and enjoying the new place where he now lives. He is located on Hersey Street, not far from his former residence. He would be very happy to see any of his old classmates who get anywhere near Hingham Centre. — Major George F. Sever has been a selectman for the Town of Kingston, Mass., for the last two years. He is now running for a third term. There are now seven aspirants for three offices.

Sever's campaign has been and is "Publicity in all town affairs." The old town is all "het up." He holds that a town should be run on business principles, and a full return made for each dollar appropriated and spent.

It is with regret that we record the passing on January 21, at Lowell, of Victor I. Cumnock in his sixty-fifth year. He had been living for some little time with his sister at 52 Belmont Avenue, Lowell, and but a short time ago expressed a desire to see any of the Class who might be in the vicinity of Lowell, as noted by the Secretary in the last Class Notes. — EDWARD G. THOMAS, *Secretary*, Toledo Scale Company, Toledo, Ohio. NATHANIEL T. VERY, *Assistant Secretary*, 96 Bridge Street, Salem, Mass.

'93 Recently Farwell Bemis was elected a director of the Federal Reserve Bank of Boston, concerning which election the following item appeared in the Boston *Evening Transcript*: "In the special election of a Class B director of the Federal Reserve Bank of Boston, made necessary by the death of Charles G. Washburn of Worcester, A. Farwell Bemis has been chosen to fill the unexpired term of Mr. Washburn. He will serve until December 31, 1930. Member banks participating in the election were those in Group 3, each having combined capital and surplus of less than \$300,000.

"Mr. Bemis is Chairman and Director of Bemis Brothers Bag Company. He is also President and Director of The Housing Company, Chairman and Director of Atlantic Gypsum Products Company, Director of Boott Mills, Lowell, and of Angus Company, Ltd., Calcutta, India. For the ten years ending in 1926 he was a director of the Second National Bank of Boston. From 1911 to 1914 he was an alderman in Newton and from 1914 to 1916 a director of the Boston Chamber of Commerce. He was President of the National Association of Cotton Manufacturers from 1916 to 1918, and is a life member of the Corporation of the Massachusetts Institute of Technology. He is a member of the American Academy of Political and Social Science, Philadelphia, and of the National Industrial Conference Board."

John S. Codman is now General Manager, as well as Treasurer, as formerly, of the Fabbreeka Belting Company at 120 High Street, Boston. — Fred Dillon and his daughter sailed for Honolulu on the *City of Los Angeles* from Los Angeles on January 26. George Gilmore '90 and his wife sailed on the same boat. — A second edition of "Water Purification" by Joseph W. Ellms giving unusually complete information on the various phases of the purification of water for drinking and industrial purposes, is now published.

For the only item of news received by the Class Secretary from a member of the Class in over a year, thanks are extended to Henry Morss. From the clipping sent, we learn that at the opening of the Michigan State Institute of Music and Allied Arts at Lansing, Mich., in 1928, the

notable faculty of teachers included Arthur Farwell as Head of the Theoretical Department. At an evening concert given by the Detroit Symphony Orchestra in the new demonstration hall at the college, which seats 10,000 people, Farwell conducted one of his own compositions for orchestra, a tone poem, "Hurakan."

The engagement of Miss Barbara Forbes, the charming only daughter of the President of the Class, to Arthur H. Hall, Jr., son of Mr. and Mrs. Arthur H. Hall of Baltimore, was announced in September. Miss Forbes assisted her mother in extending the hospitality of Lone Tree Farm, Hamilton, to those members of the Class who attended the tea given by Mr. and Mrs. Forbes in connection with the Thirty-Fifth Reunion last June. — Mr. and Mrs. Charles F. Hopewell sailed on January 22 on the steamship *Sumaria* for an extended European trip via the Mediterranean.

William W. Peabody is now division engineer of the Metropolitan District Water Supply Commission of Massachusetts, in which position he is in charge of about thirteen miles of the Wachusett-Cold Brook Tunnel now under construction. The cost of the work in his division will be more than eight million dollars. From 1915 to 1926 Peabody was deputy chief engineer of the Providence, Rhode Island, Water Supply Board on the construction of the notable addition to that city's water supply, and was chief engineer on this Providence work from October 1, 1926 until his appointment to his present position which came at the completion of the work at Providence.

Professor Spofford gave a course of lectures in February at the University of Porto Rico at San Juan. In August last, he gave a series of lectures on bridge engineering before the Division of Public Engineering of the University of Southern California at Los Angeles, also presiding at the round table conferences and at other sessions dealing with municipal engineering subjects. Last fall Spofford's "Theory of Structures" came out in its third edition. This is a revision and enlargement of his text and reference book upon structural engineering which has been adopted for use not only at Technology, but also at other technical schools, in this country and abroad, as well as at the U. S. Military Academy at West Point.

During December there was an exhibition in Boston of a series of drypoints by Cadwallader Washburn, a notable member of our Class. The Boston *Evening Transcript* of November 24 gave it the following notice, showing, as well, a cut of one of the drypoints entitled "The Quay" under the caption, "Quiet afternoon along the waterfront somewhere in France." "An exhibition of twenty-eight drypoints by Cadwallader Washburn, the initial work of that artist to be shown in this city, now hangs on the walls of the Sally Fowler Shop in Charles Street. The prints belong to Mr. Washburn's Riviera series, executed during the summer of 1928.

1893 Continued

"The etcher, a native of Minneapolis, has been represented in many European exhibitions, including a recent one-man show held in the Lefevre Galleries of London under the patronage of Hon. Myron T. Herrick, American Ambassador to France and Alanson B. Houghton, Ambassador to the Court of Saint James, and other distinguished persons. Ten of Washburn's prints have been purchased by the Luxembourg. At his death they will be transferred to the Louvre collection. Ten others are the property of the Bibliotheque Nationale. Washburn studied architecture at the Massachusetts Institute of Technology, entering as a student in 1890. Later he turned to pictorial art and studied at the Art Students' League of New York and under William M. Chase, the portrait painter. Following this he went to Europe and became a pupil of Sorolla in Spain and Besnard in Paris."

With deep regret the Secretary records the following deaths. Wright Fabyan's wife died on December 29, 1928, the Boston *Evening Transcript* giving the following notice: "Mrs. Francis Wright Fabyan (Edith Westcott) died this morning at her home at 146 Commonwealth Avenue, Boston, after a long illness. She came of distinguished ancestry on both sides of her family. Her father, Stephen Everett Westcott, a leader in the early days of New England's leather business, was a direct lineal descendant of Stukeley Westcott, one of the twelve settlers who, in 1638, with Roger Williams, founded Providence, R. I. Through her mother, Abbie A. Fuller, she was directly descended in the eleventh generation from Edward Fuller of the *Mayflower*, and was a life member of the Massachusetts Society of Mayflower Descendants. She was an artist of rare skill for an amateur, although her talents were known only to her most intimate friends. Likewise her generosity to all manner of philanthropies was marked by its unostentatious character. She had five children, four of whom, with her husband and ten grandchildren, survive: Mrs. Theodore Frothingham, Jr., and F. W. Fabyan, Jr., of Boston; Mrs. William A. Read and Everett Westcott Fabyan of New York."

We know none of the circumstances of the death of Professor William Esty of Lehigh University, Bethlehem, Penna., on July 6, 1928, as reported to the Alumni Office. Esty was graduated at Amherst, after which he came to Technology, and was graduated with the Class in electrical engineering. The following year he was in the employ of the Thomson-Houston Electric Company at Lynn, and then accepted the position of instructor in electrical engineering at the University of Illinois, where he rose to the grade of Associate Professor. In 1901 he transferred his teaching activities to Lehigh University where the remainder of his life was spent and where for many years he was Professor in charge of the electrical engineering course. During his years of teaching, he carried on consulting engineering practice to some extent.

He was also known as a writer of articles and textbooks on electrical engineering. He married in 1894 Miss Julia Louise Coy, and they had three children, William Cole, Jr., Lucien Coy, and John Cushing. Esty was a member of Psi Upsilon and Tau Beta Pi fraternities, as well as of the American Institute of Electrical Engineers, the Society for the Promotion of Engineering Education and the American Association for the Advancement of Science.

Fred B. Forbes died January 26, 1929. Forbes was principal assistant chemist in the water and sewerage division of the Massachusetts Department of Public Health, and had been connected with that department continuously since graduation with our Class. He was a member of the American Chemical Society, American Public Health Association, New England Water Works Association, Boston Society of Civil Engineers, and Sons of the American Revolution. He was married and had two sons.

Mail addressed to George M. Hawes at Val Verde, Calif., has been returned marked "Deceased."

John P. Labouisse died at New Orleans on September 24, 1928. The following notice appeared in the New Orleans *States*: "Business and social New Orleans grieved to learn of the death on Tuesday of John P. Labouisse, aged sixty-six, manager of Alexander Eccles and Company, cotton brokers, at the home of his father-in-law, James D. Hayward, leading cotton factor, of 1423 First Street. Mr. Labouisse had been ill for a short time, but his death was entirely unexpected, as he had been in active charge of his affairs on Monday. He was born in New Orleans, son of John Labouisse, and had a number of distinguished ancestors. He was graduated from Tulane University and later finished in electrical engineering at the Massachusetts Institute of Technology, of Boston. He is survived by his widow, formerly Mary Burton Hayward, and two sons, John and Sawyer Labouisse; two sisters, Mrs. Philip Richardson of Brookline, Mass., and Miss Catherine Labouisse, and a brother, Harry Labouisse."

Through the Alumni Office we were recently notified of the death of William S. Resor at New Orleans on August 10, 1927. At the time of the Thirtieth Anniversary of the Class, he reported that he had been engaged in the telephone business almost continuously since graduation. For several years he was with the American Tel. and Tel. Co. as inspector, first at Cincinnati, Ohio, and then inspector for Tennessee, Alabama, Mississippi, and Louisiana. Following this, he was with the engineering department of the Chicago Telephone Company and the Central Union Telephone Company at Chicago. Then he became a manufacturer of automobiles, but resigned his position as Treasurer of the Bendix Company of Chicago in 1909, returning to the telephone business. He had been statistician in the engineering department of the Cumberland Telephone and Telegraph Company at New Orleans for a

good many years. Resor married a second time after the death of his first wife, and they had three sons. For several years prior to his death he had been an invalid at his home in New Orleans. — FREDERIC H. FAY, *Secretary*, 44 School Street, Boston, Mass. GEORGE B. GLIDDEN, *Assistant Secretary*, P. O. Box 1604, Boston, Mass.

'96 The feature story of this issue is a report from Con Young of his doings up to January 31, written in his characteristic breezy style. "Here I am at the gate of the Garden of Allah, or at the entrance to nothing, I'm not sure which. Traveling in *Afrique du Nord* is interesting but at times difficult. We arrived in Naples, December 3, after nine days on the magnificent new Italian steamer *Augustus*. After two days Mrs. Young retired to her couch with a horrible feeling and I became assistant entertainer quite by accident. Signori Santinni, assistant manager of the boat company, was returning to Florence for his Christmas vacation and I happened to be near him when he was struggling with the entrance lists for the games. He shanghaied a young doctor and me to assist him. After things got going he ducked the job and let us finish it. After the Thanksgiving dinner we were entertained by Signora Fanny Amtua, a noted contralto from Mexico and Argentina. I followed her with some of my old dialect stories of Technology days, and with a few new ones acquired since.

"The following Saturday night I was asked to dress in a chef's costume, which the chief steward sent to my room. With that I passed above the mark of L at Technology and went about the dining room with the steward asking the guests how they liked the food. At the second table there was an old crusty Hebrew who made much trouble about the games being fair, on time, and so on. I said in my best French, 'Messieu, you lak dees food which I mak for you? I am dees nouveau Chef Special, I mak him var gud for you, n'est pas?' He replied, 'Yes, everything izz alrighdt. Here!' And he handed me fifty cents. Right there I missed the bet and laughingly returned it. A sedate old doctor of Newbury Street, Boston, Harvard '79, seemed to take exception to my familiar address. I then said, 'Ooo, la, la! You no lak dees food. I trow you in dees lak.' The fight was about to begin when his good wife said, 'My dear, don't you understand it is Mr. Young, a fellow passenger?' After that we were pals in spite of his late seventies.

"Our three weeks in Naples included the usual visit to Pompeii and the Amalfi Drive. It was wonderful all the time and quite clean and free from beggars. We then went to Taormina, Sicily, for a week and stayed nearly three, through December and January. The usual Christmas eve pastorale celebration by the natives was prevented by a previous downpour of rain of two days, which worked out at 5 P. M., December 24. It was too wet for the shepherds to come down from the mountains with their bagpipes and flutes

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to play the lead in the Bambino procession. In spite of showers most every afternoon for our first ten days we enjoyed the people, climate, and beauty of the mountains, sea, and Etna, only twelve miles away. We visited the small town near the base which was nearly entirely covered by the huge stream of lava. We picked up some hot pieces still smoking and reeking with sulphur. Our five days at Palermo were spoiled by daily rains, cold winds, and two bad bronchial colds which seemed to be the regular luggage of all touring people and many natives. We did, however, enjoy the wonderful mosaic work in the King's Palace at Cappello and the large cathedral up on the hill at Monreale. Just below that there was a monastery where old stiffes were hung many years ago in the catacombs as the Italians now hang garlic, but I didn't stop for that and at any rate, Mrs. Young wouldn't have let me.

"January 8 we took boat for Tunis. It was interesting and the Soubs quite so, except for dirty streets, foul odors, and musty Arab beggars. One day we went to Kairwan, the Mecca of Tunisia. It was an enclosed Arab city for the faithful and pilgrims. A sort of seven to one place, as seven visits there equaled one to Mecca in Allah's estimation. The dirt and smells increased tremendously over Tunis. Another day we visited ancient Carthage and saw some very interesting excavations with thousands of Phoenician and Roman relics raised by the White Fathers.

"We came from Tunis to Constantine in Algeria. There are some splendid specimens of engineering there, particularly the long viaduct and the high bridge over the gorge. The city is beautifully situated and kept quite clean. I was impressed by the cleanliness of the narrow streets in the Arab and the Jewish quarters. These Arabs are slick fellows and need watching all the time. They have faun-like eyes and an expression of blank innocence that makes me melt with kindness even while conscious of being stung. Don't let them kid you too far on this Ouled Naiël dance. I call it the naval flip flop. Just about the time you make up your mind that the girl did pretty well you discover that it was a man in girl's clothes. They gather all the tourists in at Biskra, in particular at the Casino. After coffee in the Cabaret, where four pieces imitate our jazz and the black bottom, a gong sounds and all go into a small theatre. Six so-called belles are on the stage and usually two turn out to be men. They seem, however, to do their abdominal lift better than the girls. After that Boule and Bacarat are thrown open and the good old gamblers can go the limit. However, there isn't much doing after ten P.M. except at the Casino. This station is militaire and more natural and real Arabic than Biskra. The hotels have candles in bed rooms, lamps in the *salle à manger* and *pour visiter*. Just now I'm being entertained by two Frenchmen playing checkers in a sixteen by eighteen drawing-room while I'm in the annex writing to you. The argument is good and is being supplemented by two traveling

salesmen with a migrating victrola French. We've just had three good American jazz pieces and now comes French gymnastics on an oboe. Some of the French disks are a scream, especially when they copy American jazz in song and repartee.

"This afternoon a guide hooked me for a camel ride out in the desert. It is a real one down here. The sand dunes extend about two hundred kilometers or more both east and west. Between here and Tozeur they say they are mountain high, all white, fine, drifting sand. The colors are beautiful at sunset and sunrise. I saw old Sol come up over the gravel desert of Biskra this morning at 6:32 A.M. and then saw him go down beyond the dunes of all sizes and shapes, about three miles west of this village. The guide and I left the camels and descended into a valley between two sand ridges. All we could see was sand dunes, sun, and sky. It was lovely and warm while the sun was up but soon grew cold. Three small Arab boys leading the camels sang Arab nomad and nigger desert chants all the way back from the dunes. I'm sorry I can't seem to hang on to them for the next reunion. The language sounds like a cross between Dutch and Chinese when they sing it. Mrs. Young wouldn't tackle this trip and I'm rather glad she didn't. They had a small wood fire in the dining room to make me feel warm but my legs got numb with cold while I ate dinner. Now I'm going to freeze all night in a stone (baked mud and cement walls) room. We will stay in Biskra for the spring meet at the Course, and then go to Algiers for a week. After ten days of touring through 'Maroc' by train and motor we will go over to Spain and work back to Italy where we hope to find warmth and sunshine, — perhaps in April. There we'll do a little resting and sight-seeing until our return sailing on the *Augustus*, May 18, from Naples."

A card from Billy Anderson, written in Egypt, reported his safe arrival there on his round-the-world tour, but contained the interesting information that although Mark Allen was with Billy and Billy's family, Mark had left his family at home. Apparently Mark had a little more power over the Allen family than Billy had over the Anderson family, so that Mark was able to get away on a pleasure trip all by himself, while Billy couldn't go without his family. Perhaps it is just as well thus, because if these two old sports got going in some parts of the world, international complications might result. Incidentally, Anderson remarked that there were two other Technology men on board the S.S. *Resolute*: Leman of the Class of '73, and Curtis of the Class of '79.

A belated but interesting item has come from Mort Priest in the shape of some excellent photographs showing the aforesaid Priest, in his capacity as a member of the staff of the Boston *American*, presenting the Hearst trophy for marksmanship to the Student Rifle Team of Technology. This event actually occurred last May, but as Priest's participation in it was news to the

Secretary, it is passed along with the hope that it will be news to other classmates.

Henry Gardner writes that now he is in Waltham with the Comtor Company, he is making close contact with Technology and already has some of his instruments exhibited in the mechanical laboratories there for inspection and use by the students of Professor Robert H. Smith. He is also undertaking to interest other men of the Department of Mechanical Engineering in his new method of precision gauging. — John Lonngren, after a silence of considerable period, reports that his enterprise for manufacturing wire and rods in Los Angeles has reached a stage where its success seems to be assured. It has been a long and hard fight to interest capital, but any one who knows Lonngren knows that he would not give up as long as he had an ounce of breath left in his body. The people with whom he is associated are apparently quite enthusiastic now that they have come to realize the possibilities of the Pacific Coast market for finished iron and steel, and the advantages of manufacturing the finished product on the West Coast instead of manufacturing it in the East and shipping it around by water freight. He feels that he has one of the best wire mill men of the country now associated with him. He certainly has the best wishes of the Class.

Arthur Baldwin gave the Secretary a happy surprise on February 2 when he telephoned from Boston, announcing that he was in town that day to see his brother and family. Unfortunately, he was on the move every minute so he could not find time to get over to Cambridge, but he reported that he was making a very brief trip to America, having left his wife and family in Paris because of the rough ocean voyage in February. He had seen Charlie Hyde and family in Paris and had also talked with Reggie Norris over the telephone but had not actually seen him. Arthur's son is in Paris with him and is in the office of J. P. Morgan's firm there. He was expecting to be back in Paris by the end of February. Arthur's voice sounded perfectly natural and he guaranteed that he would be present at the Thirty-Fifth Anniversary of the Class in June, 1931. Charlie Hyde, having returned to his home in California, is due to make a report of his European trip, and, in fact, has been implored by the Secretary to do so, but so far nothing has come through from him. Undoubtedly in due time he will find an opportunity to write an account of his tour, and very likely will undertake to enter into competition with Young. — CHARLES E. LOCKE, *Secretary*, Room 8-109, M. I. T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

'97 Nathan Hayward, President of the American Dredging Company, has been elected President of the Franklin Institute of Philadelphia. — In the book, "Industrial Explorers," written by Maurice

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Holland, Director of the Division of Engineering and Industrial Research of the National Research Council, and published by Harper and Brothers late in 1928, one entire chapter is devoted to Hugh K. Moore, Chief Chemical Engineer of the Brown Company of Berlin, N. H. Some fifteen pages are given over to a narration of Hugh's phenomenal progress in his chosen field of work and to his plans for the future. A fine portrait is also included. This book, by the way, has chapters on several other noted Technology men such as Willis R. Whitney '94, Samuel C. Prescott '94, and Arthur D. Little '85. The book is very inspiring, and every Technology man should own a copy.

William E. Cotter, IV, died on November 5 at his home in Somerville, Mass., after an illness of ten months. He was fifty-three years of age. After graduating from the Institute, Mr. Cotter was for some time in the architectural department of the Boston Elevated Railroad Company. Later he was associated with Simpson Brothers Corporation, and with the J. J. Prindiville Company as construction manager. In recent years he has maintained an office under his own name. He was a director of the Central Cooperative Bank, and President of the Spring Hill Realty Company. He was a member of the Knights of Columbus. Apart from his business he found much time to devote to charity. His sincere and vigorous service restored many families of the city, that had met with misfortune, to health and work. Cotter was an extremely quiet and unassuming fellow, but for that very reason he endeared himself to his classmates. He was always present at the formal reunions, and was a loyal supporter of '97.

William C. Potter, President of the Guaranty Trust Company, has been designated by the Federal Reserve Board to be a member of the Federal Advisory Council from the New York district, succeeding J. S. Alexander.

From Jere Rogers Daniell comes a long letter in answer to an urgent telegram from Charles Bradlee. "I suppose it is more or less common knowledge that in June, 1916 the Electric Boat Company assigned me to Spanish duty. They gave me about three days' notice to prepare for the trip, and in due time and after dodging various hypothetical German submarines, Mrs. Daniell and I landed safely in Bordeaux and proceeded by land to Madrid and from there to Cartagena on the southeast coast. Spain maintains its principal naval base there and was undertaking to build submarines on plans supplied by the Electric Boat Company under my personal supervision. We had a first series of six boats to build at that time, known as the B Class, of 560 surface tons displacement. These ships were delivered one by one commencing in 1921 and ending with the last one in 1925, a long time to deliver six boats it is true, but considering the delays due to war conditions and as it was our first contract we did not consider that we did so badly.

"In 1922 a second series of six boats of 900 tons were contracted for, the first two boats to be delivered in 1929, so that we are now hoping to receive the contract for a third series, this time possibly for twelve boats.

"In 1919, 1923, 1925, and 1927 I was able to make more or less extensive visits back to the United States to get in touch with the home company and brush up on the latest practice, as well as assist in the purchase, manufacture, and inspection of machinery and materials purchased in the United States and destined for installation in the submarines at Cartagena. This year Mrs. Daniell and I determined that it was time we picked a definite home place in the States, so we have purchased a house in New London and established a sort of 'Base Camp,' from which we expect to sally forth from time to time on excursions and business trips to Spain or other parts of the world, as the call may come. At all events we now expect to be more in the United States and less abroad than in the past twelve years, and so we hope to get in close touch again with home friends.

"In the meantime we have kept a flat all furnished in Madrid, with two Spanish servants all ready to move in whenever we make the first trip back to our old hunting grounds. I must say that Spain, once lived in as we have lived in it, has a lure that is hard to resist. As my old German doctor friend said, 'Spain is the only country in eastern Europe in which you can take an hour's ride into the country and drop back 400 years.'

"During the twelve years of our stay in Spain we have covered practically every nook and corner of the country from Galicia in the North, with its semi-Portuguese dialect, to Gibraltar and Andalusia, and from the Basque country on the north coast where Spanish is not spoken in the villages, to Valencia where the dialect is a variation of the Catalan. Our first 12,000 miles of motoring in Spain were accomplished in one of Henry Ford's masterpieces, a 1920 model sedan, and I can truthfully say that in those days it took a Ford to negotiate the rutted roads in wintertime, and only a Ford deserved to receive the coatings of dust applied during the summer.

"From Madrid to Cartagena by road is some 270 miles, and during the summer months when the noon temperature is in the 100-110° range, we used to do the trip by night. I remember one fateful trip when we started at 4 P.M. and arrived at Cartagena the next noon after twenty hours at the wheel without relief. I never did keep a record of the number of punctures on that trip, but I remember putting in a new tube by moonlight in the middle of the 'Mancha' not far from the fabled birthplace and scene of the activities of Don Quixote. Now, through the activities of the Directorate, the roads are much improved, and with the present outfit we can make the same trip in eight or nine hours' running time.

"It is hard in the time I can give to these notes and the space which The Review will allow to even touch on the

thousand and one different points of interest. The present Directorate in itself is a subject on which a volume could be written. I wonder if Americans realize that in five years Spain has not been allowed to elect a single official, even municipal officials being appointed by the central authority.

"Primo has repeatedly told his countrymen that they were not fit to exercise the suffrage and must have mentors appointed like children. If the United States should see fit to treat the Filipinos or Haitians as Primo has treated his fellow citizens a howl would go up from the anti-imperialists that would be heard from here to Timbuctoo. At present there seems to be trouble brewing. The lid has been clamped on so tightly that pressure is bound to arise beneath it. No chance is being given it to blow off. The support given to Primo is from three sources, the King, the Army, and the Church. As long as the three hold true, he is safe, but the collapse of any one would bring his downfall, and the first two at present show symptoms of weakening. In a last analysis it is the infantry arm of the Army that is keeping the Directorate in power. Whenever the group of army officers that control the infantry are unable to agree or to swing their regiments the régime will fall and possibly carry the royal family along with it.

"Unlike Mussolini in Italy, Primo de Rivera has no spontaneous popular support whatever, and has been utterly unable to fabricate any substitute. Proletarianism is holding him in place and proletarianism is a dangerous business to monkey with.

"If all goes well there are to be two expositions in Spain this summer, one at Sevilla and one at Barcelona, the latter of a purely mechanical and manufacturing nature. I advise all Technology men who can visit either or both to do so. They will like Spain, will enjoy the country and the people, will have many experiences, and come back enthusiastic over everything including wonder at the temperatures which exist in Sevilla and Cordoba in July and August, and at the fact that people do live there in those months and seem to enjoy living at that. As for Murcia and Cartagena — don't go there in summer if you value your comfort and peace of mind. If possible take your car with you and don't worry about language troubles. You will save time and money and have a much better time. There is no comparison as to comfort and convenience. Banditry does not exist in Spain, so jump in your car and deliver her to the steamship company in New York, get her started at Havre or Cherbourg, and just keep going till you hit Algeciras and have the Rock in front of you and Africa across the straits. You will say it was all worth while and undertake the return trip with true regret. Go to Spain in 1929." You will all be pleased to hear that Harry Worcester has become a grandfather, a son, Theodore von Rosenvinge III, having been born to Theodore von Rosenvinge Jr., on January 23, 1929.

Both mother and son are getting along nicely. — We were pleased to hear that Professor Charles Breed and Mrs. Breed spent the week-end prior to Washington's Birthday at Russell Cottages, Kearsarge, N. H., and that Charles is reported as having done some wonderful skiing and tobogganning. We are all glad to hear that he keeps his youthfulness, even though he has a few gray hairs. — We are all pleased to hear that our classmate, W. C. Potter, has been elected President of the merged Guarantee Trust Company, and extend to him our congratulations.

It is very difficult to get Class Notes for the different issues, and it would be greatly appreciated if, whenever a classmate meets another member of '97 and learns what he is doing, he would send the information to C. W. Bradlee, 261 Franklin Street, Boston, and he will see that the news appears in the next issue of The Review. We hope you will all assist in this effort and help to make the Class Notes a success.

The Class of '97 had a dinner at the Boston City Club on February 15, at which Jere Daniell was present as member and guest, and gave a very interesting talk about his life in Spain. He has just recently returned from Spain and has now bought a house in Groton, Conn. He expects to return to Spain in the early summer. We regretted that Jack Illsley turned up at the dinner with his arm in a sling, having been bruised by a piece of glass at the time of the manhole explosion on Summer Street which occurred the day before our meeting. We are glad to hear, however, that he is getting along all right. — JOHN A. COLLINS, JR., Secretary, 20 Quincy Street, Lawrence, Mass. CHARLES W. BRADLEE, Acting Secretary, 261 Franklin Street, Boston, Mass.

'99 From Maine, Seattle, Miami, Los Angeles, London, and elsewhere comes news, dues, statements of intention to attend the Thirtieth Reunion in June and regrets that attendance at that jubilee is not possible. Regrets have outnumbered acceptances, though the latter are approximately half a hundred strong and still coming. It is sincerely hoped that the first notices that went into the mail this week, February 19, will stimulate desire to attend, and I assure you that it will be permissible to withdraw regrets and send acceptances. Charlie Corbett began the story of our hopes and plans in the first notice, above mentioned, and he will continue it in three more installments. Watch for them.

From Bath, Maine, comes news of W. S. Newell who has been made President and General Manager of the reorganized Bath Iron Works of that city. The reorganized company is now completing its first contract, an ocean-going twin-screw Diesel engine yacht, for Ernest B. Dane of Brookline, Mass. The company is also constructing for delivery this year three trawlers for the Atlantic and Pacific Fish Company, and three other yachts. Newell writes that he is coming to the Reunion with Mrs. Newell.

Clancey Lewis writes from Seattle that he cannot come to the Reunion. He speaks feelingly of the "ichthyopagous" (Clancey's word, not mine) members of '99 who will read my narrative from pectoral to caudal. He says there is being waged between the fish cannery of the Pacific Northwest and the "Ikes" of that region a great and mighty argument before the twenty-first session of the Washington Legislature on the following question: "Is the steelhead a food or a game fish?" Clancey occupies chair number six at the press table in the House, and dutifully concocts daily a fish story (there is a bond between us) or any other kind of a story that will help the circulation of the *Daily Journal of Commerce* of Seattle. He writes also of the urge of the legislature to get under way the vehicular tunnel, some thirty-odd miles in length, through the Cascade Mountains; a ship canal of no less proportions from the southern end of Puget Sound to the waters of Gray's Harbor; a bridge across the mouth of the Columbia River, and another across Puget Sound from near Tacoma; and the Columbia basin project in which Congress is taking an interest, is an engineering job of no mean proportions. He advises that we keep our eyes on the Pacific Northwest.

From *Time* of February 11, I find that Edwin Bergstrom, leading architect of Los Angeles, Treasurer of the American Institute of Architects, has a desire to persuade American architects to budget their time, labors, and expenses, as other intelligent business men do. He scolded his fellows for wastefulness and scoffed at their high-faluting notions. Said he: "Architecture is a collaborative profession; a coordination of efforts to create a work of art to fulfill a definite need within a definite cost. The mind of the architect must interpret the need from another mind, apply it to his imagination, translate the concept to other minds, and direct still other hands to give it form and substance and make it fulfill the need for which, and satisfy him for whom, it was created."

Ben Hinckley has gone to Miami. He is having a great time. He saw Lindy, Hoover, Al Smith, Dempsey, and Edison, besides some of the world's best swimmers and divers. Ben writes feelingly of Miami and the route down. He made us want to start South at once.

W. H. Butler of London, England, is planning to be in the United States in March, but he cannot stay until June. — Arthur Hamilton sailed for Europe in February. — Lewis Emery is coming to the Reunion and then he is going to Europe to put the finishing touches on his voice. — W. MALCOLM CORSE, Secretary, 810 18th Street, Washington, D. C. — ARTHUR H. BROWN, Assistant Secretary, 53 State Street, Boston, Mass.

'00 We are pleased to announce that Neal, who has made such a success of his consulting engineering, is including in his field the New York territory by opening a New York City office. — Fred Everett, our old

time class baseball player, tells us that his son, Douglas, is playing hockey with the University Club of Boston. From the few games we have seen, Doug is a great help to the team.

At the Annual Dinner at the Statler, '00 was well represented by nine of the standbys who passed a pleasant evening, reminiscing among themselves between the real events of the evening. Before the opening of the doors during the handshaking, Professor Richards got a revolving wrist lock on one of our boys, and if it were not for the bell, we would have had but eight for the semi-finals. Fitch was referee. Charlie Smith, the Vice-President of the New York, New Haven and Hartford Railroad, came way up from New Haven just to be with us, and he was the life of the table. H. E. Osgood, coming by airplane from Hartford, is another example of the way '00 turns out. — C. BURTON COTTING, Secretary, 111 Devonshire Street, Boston, Mass.

'01 The Annual Alumni Dinner has come and gone. As usual Charlie Bittering and I represented the Class and were placed at a table with the representatives of chronologically contiguous classes who, like ourselves, were not numerous enough to have a table all alone. With characteristic reserve we enjoyed a splendid isolation, although the man beyond the empty chair on my right committed himself to the extent of passing me the salt. Charlie's left hand neighbor, also discreetly removed by an interposed vacant chair, spoke to him twice but Charlie, with commendable hauteur, declined to demean himself by answering. We take our pleasure sadly. One or two of the younger classes cheered feebly from time to time. Stimulated by Dennie we presented the usual greeting *en masse* to the distinguished speakers and honored guests, and at intervals lulled ourselves into semi-unconsciousness with well-remembered airs, singing la-la-la. I cannot sing the old songs now; I do not know the words. And finally, the hellish gaiety was terminated as usual by a funereal rendition of the Stein Song at a tempo which would have made Fred Bullard turn in his grave had he been unfortunate enough to hear it. There was hardly a dry eye in the house when we brought the obsequies to a close. The principal speaker of the evening was a distinguished geologist who spoke to us concerning the proposed Boulder Dam, an interesting and well-illustrated talk, charmingly delivered. Charlie went off and hid himself before the evening was over, — also, I gather, a prey to morbid yearnings. One fact stood out, however, above the sea of chastened gloom, — the food was good. I have drawn the above picture tenderly and, I trust, elegantly, in the hope that in another year some venturesome member of the Class may join Charlie and me, playing Hope to our Faith and Charity.

I am not sure whether I noted in my letter last month that Albert F. Sulzer has just been made manager of Kodak Park, succeeding the late James H. Haste of the

1901 Continued

Class of '96. The following brief notice came to me from a Rochester, N. Y., paper: "The Kodak Park plant, which he will control, occupies seventy buildings devoted to the manufacture of film, chemicals, and related materials. Mr. Sulzer was promoted to the chief managerial position at Kodak Park after having served since 1920 as assistant manager in charge of production, and he has been in charge of the Park management on the occasions when Mr. Haste has been away from the plant. The new manager was born in Chicago in 1878, and was educated at Purdue University and the Massachusetts Institute of Technology. He was graduated by the Institute in 1901, and entered the Kodak organization the same year. His first work was that of an assistant chemist. In 1902 he took charge of the chemical laboratory. In 1905 he became superintendent of the powder and solution department at the Hawkeye Works on St. Paul Street. Later in the year he returned to Kodak Park as superintendent of the chemical plant. He was appointed general superintendent of film manufacture in 1913, and in 1920 he assumed the position of assistant manager of production, which he has filled until now. Mr. Sulzer is married and lives at 96 Pelham Road."

The above is the official statement and will be of interest, I know, to the many members of the Class who knew Al in college. His consideration for Mr. Eastman's interests has led him to stick closely to the job, but he assures me that we may count upon him for our Thirtieth Reunion. As one of the pioneers in the moving picture industry, Al is having a special set of films made for presentation on that occasion. Mack Sennett, I believe, is cooperating, but the details are to be kept a profound secret. Incidentally, it is interesting to note that Al has charge of almost as many buildings as Bill Pepperell has homes, and this latter is without reflection on Bill's morals.

A few of the wandering have reported. H. I. Wood, V, is at 1358 Lynn Park Drive, Cleveland Heights, Ohio. — From a classmate I learn that little Willie Dooley, also a product of Course V, is directing vocational training for the Department of Education in New York City. Bill has recently been in Chicago studying efficiency methods, particularly as relating to the concealment of concealed weapons. He promises us bigger and better gangsters inside of a year. A problem of his department at the present time is to establish criteria on the basis of which second-story workers in posse can be separated from the promising sneak thieves while still in the tender years of childhood. That the interest in crime is growing one must acknowledge. Only the fundamentalists deny its evolutionary tendency. How long it will be before our educational institutions realize this and establish suitable departments remains to be seen. As a technical school, Technology should be in the front rank. The criminal is the great readjusting force in national economics. His artistry as an engraver and penman creates

wealth, and in the more robust fields of mayhem he is a principal redistributing agent. His introduction into our academic midst may help to solve the dormitory problem, for a wise and far seeing Commonwealth long ago realized its duty to its citizens and provided housing and recreation centers for this picturesque and productive group. I offer this suggestion freely to the next Dormitory Fund Committee.

But to return to little Willie Dooley. He too plans to make our Thirtieth Reunion the Mecca of his pilgrimage and has even offered to give professional advice to all of those who attend in the hope that by his guidance some of them may at last attain an economic independence. The attention of Matt Brush, Lammot du Pont, the remaining members of the Madero family, and the Strawberry King are especially drawn to this attractive offer. Those who are unable to attend may receive this benefit by correspondence, including the sending of one lock of hair, for this field of scientific endeavor has so far developed that personal contact is no longer necessary. One can lay down the rules of guidance today without other knowledge than the first name and the shade of complexion with the same degree of certainty that results from personal inspection and a lengthy interview.

Which reminds me. The Thirtieth Reunion is now but two years away. Begin to save the pennies, for your presence will be earnestly solicited and every opportunity offered to you to participate in a real uplift movement repeated intermittently and at suitable intervals. I shall publish a list of pledges in the not far distant future. — ALLAN W. ROWE, *Secretary*, 4 Newbury Street, Boston, Mass. V. F. HOLMES, *Assistant Secretary*, 250 Stuart Street, Boston, Mass.

'02 The following ten classmates surrounded the Class of '02 table at the Annual Alumni Dinner at the Hotel Statler on Saturday, February 16: Moore, Philbrick, Walker, Thurston, Hunter, Arthur Sawyer, Hudson, Trowbridge, and Bassett. Trowbridge was down from Bath, Maine. The climate there seems to agree with him as he is more substantial than when we saw him last. Hudson, who has not been around for a good many years, is looking much the same as of yore. — FREDERICK H. HUNTER, *Secretary*, Box 11, West Roxbury, Mass. BURTON G. PHILBRICK, *Assistant Secretary*, 246 Stuart Street, Boston, Mass.

'05 We decided to try out former-Alumni Secretary Dennie's old scheme of visiting around. Of course it could not be expected that banquets would be organized in our honor, so few meetings were held. In Portland, Maine, Tom Estabrook was A. W. O. L., while Leander Higgins, always elusive like most Course IV men, was reported in Bar Harbor for the week, and we couldn't go that far east. Bar Harbor is not generally recognized as a winter resort and we have a hunch that he is building some

more show places there. Jim Barlow, with whom we had a telephone confab, seemed very happy in his new job of city manager. Mrs. Barlow advised through Jim that she was ready to pitch again on the winning wives' baseball team at the next reunion. Portland, Ore., with Crowell, Kendall, Paquet, Steel, and Whitehouse looks likely. We'll try that next.

At the University of Maine we tried to find Jason Merrill, but he had vamoosed and left a light trail. Right here we apologize to Carl Danforth. There is no excuse for not seeing him in Bangor, and we are sorrier than he is. At Hanover, N. H., we had a session with Gordon Bill who was with us junior year in Course I and then decided he wanted pure science and transferred to Yale. He is now Professor of Mathematics and Director of Admissions at Dartmouth. Technology lost a live wire when he departed.

Lovell Parker writes of an event we wish might have been reported sooner. "I want to tell you about something that happened a few months ago. I heard that an interesting case was being tried before the Supreme Court of the United States, Charles E. Hughes appearing for one of the parties. Accordingly I went into the Supreme Court to listen to some of the argument. It was a very technical patent case, and I was much impressed by the argument of the counsel opposing the former-Secretary of State and Justice of the Supreme Court. The counsel arguing against Mr. Hughes stood with his back toward me, but it passed through my mind that he spoke the 'Bostonian language' and very likely was Technology trained. Sure enough, when he turned slightly I recognized our mutual friend and my old roommate at Technology, Gorham Crosby. Believe me, I was delighted to see him and proud that a Technology man could go up against the best in the country." Parker is chief, Division of Investigation, Joint Committee on Internal Revenue Taxation, Congress of the United States. He says that his work consists of studying the operation and effect of our system of internal revenue taxation with special reference to the income tax. This includes general studies for improvement and simplification of such system as well as special investigations of individual cases. From the report in the United States *Daily* of the Senate debate on legislation giving the Board of Tax Appeals concurrent jurisdiction with the Bureau of Internal Revenue in handling tax refunds, we read of Senator Reed of Pennsylvania stating that "Mr. Parker is one of the ablest men in the United States on questions of internal revenue taxation."

Charlie Hawkes, who for the last fifteen years has been associated with Grove Marcy, as manager of the Sampson and Murdock Company's Direct Mail Advertising Division, has recently moved his part of the business to 111 Summer Street, Church Green. The Direct Mail Division of Sampson and Murdock Company acts as an advertising agency in connection with Direct Mail advertising campaigns. — Bill Blakeman writes from

Suite 900, Equitable Building, Baltimore, "I am with the Equitable Life Assurance Society and am just about finishing my fifth year. I came in with the idea of a temporary contract until I found something else, but I seem to have hung on. After my war work in the emergency fleet, I had a very attractive offer in Baltimore to manage the shipyards started by the Mellon interests, and came down. For three years things went well, and then the slump in shipbuilding compelled the owners to close the plant absolutely. For almost a year I had a very nice vacation, and then hooked up with a concern to manufacture paint pigment from Maryland iron ore, which did not go over big, but is still operating, and the money that I put into it was probably not lost, but for the time being is very quiet. The Equitable then seemed the best bet, and I have been in the life insurance business ever since." As a "Member \$150,000 Corps" and "Southern Century Club 1926," he is traveling fast.

A letter has finally come in from Paul Ralph at Pennington Road, Trenton, N. J., who says: "I congratulate you upon getting a report from Bill Blakeman. I am just as bad, if not worse. Now that you've smoked me out I will admit that of late years I've lived near Trenton and keep more or less busy in real estate matters there and elsewhere. (According to Blakeman, Paul claims to be doing a little farming on the side.) I'm very bald, weigh more than I should, have forgotten all I learned at M. I. T., have a very nice wife, a daughter eight years old, and an automobile."

The New York *Herald Tribune* secured a cabled transcript of Einstein's latest publication which we immediately forwarded to Albert Smith in Chicago, our only high class mathematician, to abstract. The report will appear in an early issue. — Frederick M. Eaton has moved from San Francisco to parts unknown. — Referring to Mrs. Elizabeth Middletown Maddock, the class grandmother, a New Jersey informant says: "She is very busy in women's organizations, the Y. W. C. A., D. A. R., and so on, of which she is generally President, and she is said to make a very good speech." — President Charlie Clapp of the University of Montana recently spoke before a meeting of the Northwest Scientific Association at Spokane, Wash., on the geology of the Mission, Swan, and Flathead Mountains in Montana. — Charlie Johnson's boy stopped over night at Wesleyan, but we didn't hear from him, and that's how the kids do it. — James E. Rogers is no longer with the Cramp Shipbuilding Company. — Bob Clark sees Joe Brown and George Jones commuting up Chicago's North Shore. Clark and Brown both live in Winnetka.

Clarence Gage says: "I have been here in Evansville for a little over nine years. I have worked for the same company, Bucyrus Erie Company — formerly Bucyrus Company — since January 1911. For the last five years I have been superintendent of the plant here at Evansville. We employ about 400 men and build the

medium size (one to two yard) excavating machinery, shovels and draglines. Last July I spent two weeks at the Watertown Arsenal. I am reserve officer (Captain) assigned to the Ordnance Department, and this was what they call active duty training. I have two children: Florence, a senior in high school; and Robert, three years younger, a sophomore. My dissipations are a LaSalle sedan and an alto saxophone." Here's another candidate for the '05 Drum and Fife Corps.

Here's the first news from Charlie Smart for years: "I left Greenfield, Mass., my home town, where I was works manager of the Wells Brothers Company division of the Greenfield Tap and Die Corporation in March 1920, to become works manager for W. and L. E. Gurley of Troy, N. Y., an old, small, but famous company. I am also on the board of directors. We make precision engineering instruments known and used all over the world. Transits, levels, alidades, compasses, current meters, water level recorders, and standard weights and measures are our principal products. Several of our instruments are being used by Commander Byrd's expedition to the South Pole. Roy Chapman Andrews on his Asiatic expeditions has also had Gurley instruments. We have two children, a daughter who is a junior at Wellesley, and a son who is a senior in our local high school."

Billy Bixby writes in reference to Jack Flynn: "About a year ago Milliken Brothers of New York was merged with Blaw-Knox as The Milliken Brothers-Blaw-Knox Company to handle our export business. Jack Flynn, although still retaining his connection with Blaw-Knox Company as manager of the Bucket Department, was selected to represent this new organization traveling all over South America handling all our products, establishing new agents and contacts. It was a happy selection for Jack has made a fine impression down there, so good, in fact, that his stay is rather indefinite." After just four lines to the effect that he is still selling steel buildings and that another daughter arrived on October 18, 1928, he scolded your Secretary with "Let's hear from you again but *make it cover at least one page*."

By an odd twist of fate, we recently found, in quite the wrong place, a letter from Ed Coffin, almost three years old, describing his visit to Bermuda and the excitements of crossing the Gulf Stream in a storm. Strangely and sadly no use of this story was ever made in the Class Notes. That is one on your Secretary, who has never before or since, to his knowledge, discarded good copy. It is rather old news now, but there was some dope on yacht liversies in Bermuda which just answered Dan Adams's questions, and the letter was sent to him.

From Forest Sprague: "I have been in Luray, Va., for three years and like it. The caverns are well worth a visit and every once in a while I receive a call from some friend who is here to see them. Last June I attended the annual meeting of the American Leather Chemists' Association

at the New Ocean House, Swampscott, Mass., and afterwards had a nice visit with Bob Lord in Danvers. Bob is a member of the Association. I had not seen him for many a year."

For years now, Albert Gilbert has been cultivating a select apple orchard in Newbury, Mass., possibly near Newburyport. He didn't tell us about it and, presumably, was waiting until he could report bigger and better crops than Bob Lord or Grove Marcy. They are nearer their hobbies than Gilbert who directs his operations from Brooklyn. Whether he personally digs out the borers like Bob or squirts the sprayer like Grove we do not know. — ROSWELL DAVIS, *Secretary*, Wes Station, Middletown, Conn. SIDNEY T. STRICKLAND, *Assistant Secretary*, 20 Newbury Street, Boston, Mass.

'07 Word has been received that William S. Lucey has become engineer for the Grays Harbor Pulp and Paper Company at Hoquiam, Wash. Bill was engineer with the Eastman Kodak Company from 1907 to 1917, then with the Hammermill Paper Company at Erie, Penna., until the present.

Under date of February 1, the following letter came from O. L. Peabody, familiarly known as Peabo: "Possibly you will be surprised to learn that after seventeen years, off and on, I have left the George H. Morrill International Magazine Building, 959 Eighth Avenue, New York. My home address is 145 West 79th Street, New York. While the work is different from my work at the Morrill Company, in that I am dealing with paper instead of ink, I seem to find it difficult to break away from the newspaper business in some form or another. The next time you are in New York I would be very glad to see you, or any of the brethren, if you will give me a ring at Columbus 7300."

G. Edward Prouty, who has been associated with Hayden, Stone and Company of Boston, investment securities, since Technology days, recently became connected with A. B. Conant and Company, a firm in a similar line, located at 95 Milk Street, Boston. Prouty lives in Littleton, Mass., with his family which consists of his wife and three boys. — The Secretary learned, through talking with Arthur K. Tyler on another matter not long ago, that he was married in June, 1928. We had always supposed that Arthur was a confirmed bachelor. We are beginning to have hopes for a few others of our classmates who up to the present (so far as we know) are single. Arthur is a director and actively associated with George T. McLauthlin Company at 120 Fulton Street, Boston, manufacturers of elevators and machinery. His home is at 147 Longwood Avenue, Brookline, Mass.

James L. Walsh has become a Vice-President of the Guardian Detroit Bank, Detroit, Mich. — BRYANT NICHOLS, *Secretary*, 2 Rowe Street, Auburndale, Mass. HAROLD S. WONSON, *Assistant Secretary*, Int. Shoe Company, Manchester, N. H.

'09 The '09 Twentieth Reunion will be held from June 14 to 17 at East Bay Lodge, Oster-ville, Mass. Now that the place and time for the Reunion have been fixed, all that the rest of us have to do is to show up at the appointed time, letting the committee know beforehand that we are coming, so that the necessary arrangements can be made for our comfort. The success of the party was assured when Jim Finnie agreed to assume the chairmanship of the Reunion Committee to be selected by himself. Jim has taken off his coat and hat and before long you will receive detailed information. Let's all get behind Jim and help him put the Reunion across with a record attendance.

Those of us who live in Boston were glad to see Mollie Scharff at the Alumni Dinner on February 16. Mollie is President of the Technology Clubs Associated and came to Boston to extend a personal invitation to the Alumni to be present at the meeting of the Technology Clubs Associated in Pittsburgh next May.

The Boston *Herald* of February 11 announced the winners of the prize essay contest conducted by the Ford Hall Forum on "What should our attitude be to the Hoover Administration?" Florence Luscomb, who was one of the winners, has been prominently connected with a number of semi-political organizations, including the Boston League of Women Voters. Some years ago she was an ardent suffragist, and at one time was a candidate for the Boston City Council. Florence will attend the inauguration of President Hoover as one of the guests of the Ford Hall Forum, and will be introduced to the new President.

Tom Desmond of New York has been giving considerable time recently to Republican politics, serving as a member of the Hoover-Curtis New York State Campaign Committee, President of the New York Young Republican Club and Vice-President of the National Republican Club. Desmond has also received considerable newspaper mention recently as a possible Republican nominee next fall for Mayor of New York City. Desmond himself, however, is in favor of a Fusion movement in New York City which would probably result in the mayoralty nomination going to a Democrat. — CHARLES R. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass. PAUL M. WISWALL, *Assistant Secretary*, Postum Company, 250 Park Avenue, New York, N. Y.

'10 The following clipping from the *Engineering News Record* was sent in by Carl Lovejoy: "V. T. H. Bien has joined the engineering staff of the headquarters of the National Lumber Manufacturers Association at Washington, D. C. He will be engaged on the various publications being prepared by this department."

Allen Gould sends an article from *Instruments* on aircraft instrument developments by Bradley Jones, who is an authority on this subject. He also sends this clipping: "H. F. Parsons has been

appointed general manager of the Edward Ehrbar Company, Brooklyn, N. Y. Mr. Parsons is a civil engineer and a graduate of the Class of 1910, Massachusetts Institute of Technology." — DUDLEY CLAPP, *Secretary*, 16 Martin Street, Cambridge, Mass.

'11 Believe it or not, we had our usual eleven '11 men at the Annual Dinner of the Alumni Association at the Statler in Boston on February 16. They were: Alter, Coburn, Coupal, Denison, Dolliver, Eldred, Leary, McManus, MacPherson, Parker, and Walter Wilson. It was a fine affair this year, and the usual good fellowship flourished at the '11 table.

Word has reached us that Erv Young and his bride of last December were up here in New England for the Christmas holiday season, visiting his parents at Haverhill. This home coming was preceded by a ten day cruise to the Gulf of Mexico, Havana, the Bahama Islands, and other West Indian ports. They are now at home at 748 Devon Street, Arlington, N. J. — I had a nice chat with Dick Ranger at a recent meeting of the Alumni Council at Walker Memorial. Dick had come on from New York for it. He reports that the Technology Club of New York is more and more coming into its own as a popular gathering place for Alumni, and the speaker luncheons they have each week are well attended. He says he sees Pat Russell, Burleigh Cheney, Charlie Edwards, Bart Nealey, and Dick Gould quite frequently and that they all seem contented and prosperous. In particular Dick Gould has worked up a splendid sanitary engineering consulting practice and is now in the midst of a big layout for a New York City proposition.

It was really great to recognize the other day the familiar scrawl of good old Zeke Williams, XI, who for so long has traveled far and wide for the National Cash Register Company. Let Zeke speak for himself: "No doubt this will seem like a voice from the dead, and in reality I am rather ashamed of myself that I have not written you sooner. But better late than never, so here goes. For nearly thirteen years now I have been associated with the National Cash Register Company of Dayton, Ohio. During that period I have worked in all sections of the United States. Over two years ago I was made manager of overseas business and since that time I have been continually on the go. I am responsible for all business of our Company outside the United States and Canada, and at present we are doing business in more than sixty foreign countries — practically every civilized country in the world. At present we are doing nearly a million dollars of foreign business — representing 40 per cent more profit yearly than when I took charge two years ago. My work is intensely interesting, including as it does not only the sales but the foreign manufacturing and financial arrangements. Being unable to effectively operate from Dayton, I am continually on the move, having traveled

over 100,000 miles in forty-two countries in the past eighteen months. Right now going from New York to Europe or South America is about like what going from Boston to Wellesley used to be.

"This year Mrs. Williams and I will celebrate our fifteenth wedding anniversary. Having married a Smith College girl I have surely been converted to the fact that Smith can furnish the ideal wife. We have two kiddies, a son nearly nine and a small daughter of six. At present the family is on the Riviera in southern France where they are pleasantly located in a pretty villa.

"My plans for this year are rather indefinite at present, but I hope to spend at least a short time in the States. We have a large factory here in Berlin and much of my time has to be spent here. However I will probably take a fast trip through South America again this year and then possibly Japan and the Far East. Right now I am planning on a trip into Russia as a guest of the Soviet Government. It should be interesting to get first-hand information on present conditions there.

"I have been much interested in the various articles appearing in *The Review* on different phases of aviation. For some time now, in order to conserve time, I have used airplanes to expedite my travel in many countries, having pretty well covered Europe by plane and several countries in South America. Possibly an experience I had in South America a year ago will prove of interest. At Barranquilla, Colombia, I took an airplane to fly up to Bogota, the capital of the country. The only other means of transportation is the Magdalena River which at times takes weeks to navigate. In making this trip a cylinder head cracked and we dropped, or rather fell into the river. To be rescued from a river inhabited chiefly by big crocodiles by natives in the jungle, is an experience to remember for a short time at least.

"I came across the Channel from London to Paris with Clarence McDonough, I, and his wife. He is the first classmate I have bumped into for many years. He is with The Foundation Company in Paris at present, and we reminisced about our days at Technology, about Ted Parker, Fat Merrill, and the rest of that good old bunch. My hair is rapidly turning white, and for any man who wants to get white hair quickly, I would recommend the overseas end of any business. Please give my very best to any of the boys you may see. I have never forgotten our days there and the friends we made. You have my sincere best wishes for much prosperity and pleasure in your new affiliation with The Lamson Company. I used to bump into their representatives in competition in the department stores. Business is the greatest game in the world, there is nothing so interesting and with such a challenge. Also I am firmly convinced that an engineering training is the greatest asset for any business man. If it does nothing else it develops the power of analysis and straight thinking. I trust that this year will be the most prosperous for every old '11 man."

1911 Continued

That's the kind of a letter a Class Secretary greatly appreciates. — I met Roger Loud, VI, the other morning in the South Station. He is more active than ever, he says, in the commercial end of appliances for the Edison Company here in Boston. He was then on his way to the Harvard Medical School new building to run a test on a big new electric range installation. Roger said that nobody in the electrical wholesaling business has any conception of the peaks to which the appliance business is rapidly rising.

And so we must close another set of '11 Notes. Follow Zeke Williams's example, and write to Dennie. — ORVILLE B. DENISON, *Secretary*, The Lamson Company, 213 Congress Street, Boston, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

'12 Unparalleled in the history of Institute classes, for numbers in attendance, unique events, and general, all around, good Technology spirit, the Twenty Year Reunion of the Class of '12 was held at Palm Beach, Fla., early in March. One hundred and twelve were present; Kebbon led the snake dance by moonlight on the beach; Arch Eicher won the three mile swim; the baseball game was a riot; a few old grinds played golf; sunshine — joy — reminiscences!

Whoa! Wake up! Whattsa matta! April Fool! Your Assistant Secretary is so cuckoo about this Twenty Year Reunion that he even has dippy dreams about it, three years ahead of time. Anyhow, we've had so many contacts with classmates lately that we begin to hope there's some interest in the old Class yet. Several good letters have come in; some we're holding over until next month's Notes.

The dream reported above was probably inspired by the letter from Arch M. Eicher, I, — a letter replete with allusions to happy days gone by, and at the same time full of lively interest and a cheery outlook on the things of today. That's the way Arch Eicher is. Eicher is one of those who went to Technology to become a civil engineer, — and he did! He is with the American Construction Company of Cleveland, but actually is to be found almost anywhere along the Great Lakes from Erie to Michigan, wherever there are docks or breakwaters to be built. Here's what Arch has to say for himself: "I read The Review regularly, going first to the Class Notes and get plenty of chuckles reminiscing the times, places and fellows, all of which is good food. It is great to receive all this news, yet not all of us have so much to announce. You see, when some of us have no weddings, no children, no titles, no feats to broadcast, it is hard to write and say, 'Hello. How are you? How is everything?' and so on. Of course there is an obligation on our part, and your good letters should arouse any smoldering elements left in some of the dying ones. To see any one of the Class of '12, (or '11 or '13), especially those we knew either in class or on the beaten path up Newbury

Street or Trinity Place, is the best treat I know. Each time I see Ralph Stone I yell halfway across the block, and Ralph yells back. Ralph means 'Sullivan Machinery Company' to me, and I have called on him several times, always when we need real data on 'Air'. He is getting a little gray, even as you and I, but retains that warm, likable smile which spreads geniality and confidence in anything he says.

"In 1925 I was living in a little shack back in the woods on a private estate, looking after the remodelling of a farm. Everything from drilling wells and building a log cabin, to plowing with a team of mules. Carl Rowley, Allen Gould, and others would come regularly to inspect the work (Rowley and Small were architects for Mr. Brown), and incidentally to ride a couple of nags that I had for such visits. But now, this is different: docks, breakwaters, intakes, cofferdams, — in fact, anything in the lakes and along the shores of rivers as well, with our hind leg in the mud! Our equipment is practically all floating, but we do come ashore if winter comes and we need a land job to carry on till spring. My route is chiefly between Erie, Penna., and upper Michigan, along the lake shore, and I'd be happy to find any classmates who are near that trail. We have just finished a job on Bird Island in Niagara River at Buffalo. When I first visited the work who should be strutting around, eyeing our work, but George Chambers, I, who was engineer on the job for the city. We have had some good visits since.

"While in Boston a year ago I saw many of my old friends at Stone and Webster's, men who had been such splendid leaders in the war work. You know, I was with them in France on construction and I shall always feel that I am a Stone and Webster man. Naturally, I saw my old chum, Jack Lenaerts, out at Hood Rubber Company, — we fought and cried together as of yore. Gerry Howard, with whom I spent a few months in Tennessee, is, I understand, a most prominent and prosperous contractor in Nashville. They say he is still single and the same old happy-go-lucky Gerry who used to play magician for us at Technology Chambers, or with Al Ranney at Southern Club parties. I am ashamed to have delayed so long in writing. We have been so busy and I like the work so much that everything seems to wait on that. I am living at the University Club, Cleveland, Ohio." Arch ends with a plea to tell him where are Kebbon, Dave Benbow, and "some of those other famous old-timers."

We had a phone call recently from Jesse Hakes, I, who was in town on a flying business trip from Baltimore. Jesse has built up his own personal business, the Baltimore Tool Works, and seems to be doing very well. We were just trying to sell him some perfectly good advertising in McGraw-Hill's *American Machinist* when he suddenly remembered he was in a hurry to get back to Baltimore, and hung up. Tough luck, but we'll get you next time, Jess! — We had a personal

visit from Ernest Nicholson, I. Our enthusiasm at receiving the call was slightly subdued when Nick admitted he hadn't really come to see us as a member of the Class of '12, but on some other business connected with McGraw-Hill. However, we did get a little information which we are passing along. Nicholson's official card reads, "Field Engineer, Aetna Casualty and Surety Company of Hartford, Conn." He is traveling constantly, in connection with contract bonds and insurance on construction projects. Nicholson has also been giving lectures on these subjects before senior classes in engineering at various colleges, such as Yale, Dartmouth, and the University of Arkansas.

Max C. Mason, VI, offers the following cheery contribution: "I am on my knees! Your request was a perfectly reasonable one and you had every cause to get a little peeved when I failed to acknowledge your letter. My only excuse is that I seem to have writer's cramp, or something akin to it, every time I try to evolve this autobiographical stuff. As a matter of fact, my story is very simple. Back in 1912, two weeks after our Class had received its attractive products of the tanner's art, I went to work in Boston with the idea of trying to disprove the theory that 'a prophet is not without honor,' and I am still trying. My first position with the Stone and Webster Engineering Corporation was as an electrical draftsman, and I found almost immediately that the title draftsman was given me by special courtesy as my work consisted of putting ink on top of other fellows' drawings. I am reasonably sure that it was on account of my terrible lettering that I was taken off the tracing work a little later. That lettering haunts me even today, as occasionally I see a print of an old tracing and recognize my own handiwork.

"In 1914-15 I spent about a year as a draftsman on the construction of the present Institute buildings, and saw them rise, step by step, from the ground. It will always be a source of satisfaction that I had a part, although an insignificant one, in building the new Technology. In 1917 I was assigned to work that my firm was doing for the War Department, and for several months was located in Washington. In August, 1918, I went to work for Uncle Sam at a dollar a day, but had gotten only as far as the Engineer Officers Training School at Camp Humphreys, Va., when the Armistice was signed. From 1919 to the present date I have been engaged principally on report work, and have assisted in the preparation of reports on almost every conceivable industry from soap factories to coal mines, to say nothing of public utilities, large and small. Any technical electrical knowledge that may have adhered to me when I left the Institute has been pretty much lost in the shuffle. In 1924 I was married to Miss Hope Morrison of Providence, R. I., and we have one son just old enough to say Daddy so you can understand it. We three acquired a small home about half way between Wellesley and Weston."

1912 Continued

Commander Jerome C. Hunsaker, XIII, who has distinguished himself in the field of aeronautics, gave a talk to the Technology Club of New York on February 18. His subject was "The Development of Airships." Commander Hunsaker, formerly head of the course in aeronautics at the Institute, has recently become Vice-President of the Goodyear-Zeppelin Corporation, and is recognized as one of America's leading experts on the design and construction of lighter-than-air ships. His talk covered the early history of balloons, non-rigid and semi-rigid dirigibles, and then the work of Count Zeppelin in Germany. Then he revealed to his audience something of the possibilities and plans for the inauguration of trans-Atlantic passenger and freight service by monster rigid airships, surpassing in size even the giant Graf-Zeppelin which made an experimental crossing last October. Commander Hunsaker's address is Goodyear-Zeppelin Corporation, 25 Beaver Street, New York. Much of his time, however, is spent in Akron, where the company's plant is located. — A. S. Hammond, III, has recently returned from Peru. He is still promising to write us a novel on his many and varied experiences in the mining game in South and Central America.

Only a handful of the faithful appeared at the Annual Dinner held in Boston at the Hotel Statler on February 16. Elliott Tarr, VI, who has not missed a banquet yet, was on hand as usual from Gloucester. Walter Lang, X, who has missed but one banquet since graduating, took second honors. Weenie Schell, Reynolds, and your Secretary completed the Boston delegation. We were fortunate in having Bill Bird, I, with us from New York. Bird is becoming quite a world traveler, as his work as engineering investigator for Bond and Goodwin took him last summer to Italy, France, and England. He apparently timed his visit very well as he was able to take in the international tennis matches in France, and the Grand Derby in England. Bill reports that hydro-electric development in Italy and France is fully on a par with that in this country. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, 411 Maitland Avenue, West Englewood, N. J.

'13 The Assistant Secretary has received no communications during the past month, not even the illustrious Capen has so much as given him a phone call. No doubt our classmates are all too busy signing bonus checks or writing "self orders" for their stock brokers to have time for a bit of news for *The Review*.

We see Cotton on the street occasionally. He is leading the life of a gay and debonair bachelor. Cotton resides in Cambridge, but takes a trip to Boston once in a while, to watch the market.

A small group turned out for the Annual Alumni Dinner. Only five '13 men were present: Butsey Bryant, Morton, Al Brown, Cushing, and Townsend. M.

C. Mackenzie, who used to be on the staff when we were students, sat at our table, along with three or four members of '14. Morton is working for du Pont in the lacquer division among the tanners and leather finishers. He was stopping at the Statler, and, in fact, just happened to bump into the dinner. He looks hale and hearty, even fat. We were all glad to greet him. Al Brown still functions for the Associated Factory Mutual Laboratory. Cushing works for the City of Boston. He is Head of the Physical Department at the Mechanic Arts High School. We look to see him a headmaster one of these days. Butsey Bryant said the movies of the Reunion came out great. Shots made both inside and outside the Inn developed much better than anticipated. They will be shown at the next get-together of the Class.

Mr. Mackenzie has been in the wood-working business in Derry, N. H., for the past ten years. He is doing very well and appears so. — If '13 men desire news in *The Review* they have only to loosen up and let the Secretaries know what is going on throughout the country. — GEORGE P. CAPEN, *Secretary*, 50 Beaumont Street, Canton, Mass. ARTHUR L. TOWNSEND, *Assistant Secretary*, Room 3-205, M. I. T., Cambridge, Mass.

'14 As Vice-President of the Alumni Association, your Secretary found himself on the dais at the annual dinner held February 16. With the aid of much helpful advice, generously supplied by many members of the Class, the position was filled with as much grace as one accustomed to attending '14 dinners could be expected to muster up on such an occasion. Following the dinner a couple of enjoyable hours spent with Duncan Shaw, who had journeyed from New Britain, Conn., to attend the fête, did much to readjust your Secretary so that he might reenter the precincts of his own bailiwick. Besides Shaw, Stump, Chatfield, Gazarian, Bryant, Swift, and MacKenzie making his annual pilgrimage from Derry, N. H., made up the '14 party.

Dinney Chatfield delivered his lecture on "Why an Airplane Flies" at the Institute on February 10 to the largest group ever assembled to listen to these Sunday afternoon Popular Science lectures. The local papers on the following day credited Dinney with a most interesting and instructive talk.

February 5 found the usual Boston group assembled at the Engineers Club for the monthly luncheon. Reunion plans were discussed. Ambler, Horton, Fales, Adams, Crocker, Atwood, H. S. Wilkins, and Richmond made up the party. And speaking of the Reunion, have you reserved the dates June 21 to 23? The class dues campaign for the five year period is progressing satisfactorily. On February 18, sixty-seven out of our 200 active members had sent in their two dollars. Were you one of them? About eighty-five have returned the questionnaires. If you have not attended to these, will you please do so promptly?

L. T. Forbes, who is an engineer with the Submarine Signal Corporation of Boston, is in Paris for a number of months on business for his company. — Another wanderer is Phil Currier. In a recent issue his departure for Buenos Aires was announced. Phil has written telling of his arrival, and also of his meeting President Hoover while on his visit there. — From Currier comes the information that A. P. Shepard is traveling through South America, negotiating for the purchase of small independent power plants so as to combine them into a complete system.

Fred Bommer, who has been associated with several rubber companies, has gone in business for himself. He is President of the Arlington Rubber Company, with a factory in Dorchester, Mass. Fred's specialty is the manufacture of golf balls using a new process rubber thread which he has been developing. — Phil Morrill writes from St. Louis that, in spite of having added fifteen pounds, he is able to wield a golf club, and he is getting in trim for the reunion tournament at Saybrook.

What a blessing the questionnaires are! A few have objected to filling in information they knew was already on file; but if they could only see the long list of unreported vital statistics these blanks have revealed, no one would object to filling in this data once in five years. Some of the unreported items that have been brought to light follow. E. C. Taylor has settled down in Springfield, Mass., as a member of the firm of Chapin and Neal. Ed has been married seven years, and has a son six years old and a daughter four years old. — After years of silence, Carl Sanborn reports from Los Angeles, where he and Jim Holmes have entered into a partnership as consulting engineers. Carl is married and has a son eight years old. — Another '14 man located in Los Angeles is R. H. Annim. He, too, is a consulting engineer, is married, and has a boy and a girl. — Frank Jerome is division engineer for the New York Central, located at Chicago, Ill. Frank married the year after graduation and has three children, who are now so nearly grown up that he cannot even remember the dates of their births.

Paul Howes and Mrs. Howes, who, it will be recalled, was Constance Fuller during undergraduate days, now vie with Stirling Harper for the class record of the largest family. Both families enjoy that happy privilege of five children. The Howes started with two girls and followed with three boys, while Harper's are all boys. As both Howes and Harper are architects, there is no course competition, but all other courses are not even in the running with this grand record to look to. The Howes are living in Holyoke, Mass., and Harper in Wilmette, Ill. If number six arrives before our Reunion your Secretary will present the motion that the parents be the guests of the Class during Reunion.

During the past year there have been a number of new arrivals not previously reported. A. C. Sherman reports the arrival of a third daughter on May 4 last.

1914 Continued

— Charlie Fiske announces a son on June 30. — C. H. Wilkins announces a second son on August 18. — Skip Dawson reports a son on February 11, 1928. — John Giffels writes of the arrival of a daughter on July 12. — Rus Trufant reports a second daughter on June 22. — R. J. Cunningham announces a daughter on January 6. Cunningham is in Brooklyn with the New York Telephone Company, and also has a son five years old.

Ros Barratt just got around to joining the Benedicks last year. As Ros is an architect we would call his attention to the records of his undergraduate associates. — Although they have been heard from at fairly frequent intervals, the following have previously neglected to report the important events summarized below. Henry Gardner had a son in 1927. Henry has another son and daughter. — Roy Hardy had a second daughter in 1923. — Clyde Ross had a son in 1927. — H. R. Russell had a daughter in 1926. — Bill McPherrin had a second son in 1925. — L. B. Duff had a third son in 1924, followed by a daughter in 1926. — Major Bill Lucas had a son on July 4, 1925. — Lyman Baird had a daughter way back in 1922. — Dave Sutherland also had a daughter way back in 1924.

It is great to have something to write about. Just think what a letter once a year to your Secretary would mean to these Class Notes. Until next month, and then the Reunion. — HAROLD B. RICHMOND, *Secretary*, 100 Gray Street, Arlington, Mass. GEORGE K. PERLEY, *Assistant Secretary*, 21 Vista Way, Port Washington, N. Y.

'15 What a month! First I must tell you about the Class of '15 dinner we had in New York on January 7. Sixteen men were present, more than we've had at any class dinner for some time. This number includes six men who had met there for a 1928 dinner. George Urquhart came out of a long retirement and pleased everyone with his presence. St. Elmo Tower Piza, the life of the party last year, was prevented at the last moment from attending but his place was filled by O. R. (Fannie) Freeman, who entertained us all with his many interesting and amusing experiences. The men suggested the memorial to Howard Thomas which I told you about last month, and recommended further that at the time of our Fifteenth Reunion we give the Institute some form of permanent memorial to the memory of the deceased members of 1915, of whom there seems to be an unfortunately large number for men of our age. You would have to have attended the dinner to enjoy the good time we had and to appreciate the funny experiences and wise cracks. I understand that Mrs. Holway (and perhaps some other wives) reads these Notes, so necessarily some of the year's best stories must be deleted, — and Bill Holway told the best ones at that!

Following are the statistics on the men at our dinner: Ralph Hart, X, is President of the Hart Products Company, New York, manufacturers of textile chemicals.

He recently had a technical paper in the January issue of the *Journal of Industrial and Engineering Chemistry*. He is single and lives in New York City. — H. Warfield, I, is an engineer with Coverdale and Colpitts Company, New York, consulting engineers. He has been devoting most of his time to a valuation of the subway systems there in connection with the proposed seven cent fare. He has learned a lot about politicians and their ways. He is single and lives in New York City. — Christian Wolfe, I, is Treasurer of Nelson and Langren Company, Brooklyn, N. Y., manufacturers and erectors of light steel ornamental works. Chris is modest and hesitated to admit being a member of his firm. He is married and lives in Brooklyn.

Charlie Williams, I, is an engineer with the Suburban Engineering Company, New York, general contractors. He is married and has two girls. He lives in New York City near Warfield. — Howard L. King, I, is an engineer with Mason and Hangar Company, Inc. Howard is now working on the Fulton Street subway and told us something of the finesse of this work through the narrow downtown streets. He is married, has one daughter, and lives in New York City. — J. W. K. Glynn, I, is with the U. S. Treasury Department, Income Tax Division. What a funny fellow! From the Institute he went to two or three other colleges, including Boston University where he marveled at the changes in the Walker Building. He saw a lot of fighting with the troops in France. He gave us a great laugh about his work on income taxes. He is planning to retire soon, his only regret being that he didn't get into this work before so he could be retired now. There's gold in those papers, I guess. He is married, has two boys and one girl, and lives in the Bronx.

Kebe Toabe, V, is President of the Elizabeth Plate Glass Company, Elizabeth, N. J., makers and installers of building glass. He is married, has two boys, and lives in Elizabeth. — Bill Holway, XI, is an engineer with the Lock Joint Pipe Company, Newark, N. J., hydraulic engineers. Bill has just returned from Oklahoma City where he used to advertise Boston baked beans and brown bread at his house every Saturday evening, inviting any wandering Bostonians to come. He gathered them from far and wide, all hungry, but all Bostonians. Bill told some good stories. — Louie Zepfler, V, is superintendent of power, Standard Oil Company, Jersey City. He is the same old boy, is married, has one boy and one girl, and lives in Elizabeth, N. J. — Martin W. Cowles, XI, is a health officer, Hackensack Water Company, Hackensack, N. J. Cowles is one whom we had not seen for a long time. He is single and lives in New Milford, N. J. — O. Ricker Freeman, IV, — Fannie himself, in person — is an architect with Cook and Blount, New York, formerly the Architectural Division of Lockwood, Green and Company. Some one labeled Fannie as "too old and irritable to get married," but he certainly is young enough to be amusing for

he was the life of our party. He did the Princess Hotel in Bermuda and his present job is the new municipal auditorium at Atlantic City where he has charge of the color schemes, interior decorations, and furnishings. Look him up when you're next in New York. He is single and lives in Yonkers.

Burnham E. Field, X, is a research assistant with the Union Carbide and Carbon Research Laboratories, Inc., Long Island City, N. Y. He is manager of the metallurgical division and a real engineer. He is married, has two girls, and lives in Long Island City. — Aubrey D. Beidelman, XIII, is a test engineer with the Pennsylvania Railroad at Altoona. He has been consultant in a number of interesting cases against the Company. He is married, has two daughters, and lives in Altoona. — George Urquhart, X, is President of the American Piano Company, 580 Fifth Avenue, New York. George looks great after his long retirement and we all were glad to see him and enjoyed what he told us about himself and the manufacture of pianos. He was formerly a Vice-President of the Bankers Trust Company in New York. He is married, has one boy and one girl, and lives in New York. — Jim Tobey, XI, is a health officer and director of public health with the Borden Company, New York. He is married, has one boy and one girl, and lives in Rye, N. Y. You often read about Jim in this column. He did all the work for this dinner and fixed everything up just fine for us. Our thanks and appreciation to Jim for the success of the evening! — Azel W. Mack is a salesman with the Saranac Pulp and Paper Company, Inc., Plattsburg, N. Y., manufacturers of moulded wood pulp products and machine glazed sulfite papers. He is single, and you know where he lives. — We are planning for a Boston dinner next.

Shortly after the dinner in New York came the following: Dr. and Mrs. William Neer announce the marriage of their daughter, Imogene, to Mr. Martin Warren Cowles, on Saturday, February 2, 1929, in Paterson, N. J. One by one they go. To Cowles and Mrs. Cowles the sincerest congratulations and happiest wishes from our Class. — And now we know the why and wherefore of Gabe Hilton. I visited Mr. and Mrs. Hilton recently in Detroit and Mrs. Hilton is reason enough, for how could even Gabe resist such charm and personality? They spent a month or two in Europe on a wedding trip, and knowing Gabe's proclivities you can easily imagine the time they had. Mrs. Hilton refused to be interviewed. Their apartment in Alden Park Manor looks out on the Canadian Club distillery across the river on the Canadian side, so you can imagine the welcome Gabe and Mrs. Hilton extend to any visiting classmates in Detroit. Personally, I'm going up early next time. And she, too, enjoys our Class Notes.

Let's make next month just as good as this month with a lot of interesting letters. — AZEL W. MACK, *Secretary*, 377 Marlboro Street, Boston, Mass.

'16 It is surprising how quickly a month rolls by. When I sent in my Notes last month it seemed as though it would be a long time before any more were due. However, some of the loyal classmates have come to my rescue and sent in a number of most interesting news items, which are given as is because no editing is necessary.

Shatswell Ober writes: "First, being the party of the first part, I am still a research associate (terrible title but interesting work) at Technology. I have practical charge of the aerodynamic research carried out in the wind tunnels, including construction of tunnels and apparatus, as well as experimental work. More or less vitally, I am still married, with one daughter whose knowledge is a thing of awe. (She started school in September.)"

"Charles F. Gross, XIII, has been Professor of Naval Architecture and Marine Engineering at the University of California, since 1923 I think. Last June he descended from the ranks of the élite bachelors to the overworked husbands. Helen Mae Dickey was the lucky lady. John D. Eberhardt, II, is very busy making pianos in Neponset, and still enjoys single blessedness. Edgar F. Hanford, XIII, is in the power plant section of Stone and Webster, still designing yachts for amusement, at any rate, — for remuneration when possible. Edward F. Hewins, XIII, is an engine and propeller designer at the Newport News Shipbuilding and Dry Docks Company. His family, I think, is one wife. John D. Sanford, I, is having a happy time, spending summers in New England and winters in France. Too bad! In the spring Cy Guething was busily engaged in searching for victims for the Alumni Dormitory Fund, but you will, of course, receive good dope about him. The Review, two months ago, had Gfroerer attached to '17 instead of '16. I think we had better claim him as he is very useful. Alexander Klemm, XIII, is general factotum of the large and growing Department of Aeronautics at New York University. He is on various sub-committees of the National Advisory Committee for Aeronautics and is consulted on many projects. John G. Fairfield, II, is Professor of Mechanical Engineering at Rensselaer Polytechnic Institute. His family consists of one wife and one daughter (last I heard of in June, 1928)."

On the imposing letterhead of the Technology Department of Electrical Engineering, Joe Barker advises: "It has been a long time since there have been any notes for the Class of '16 in The Review, and as I have done some traveling in the recent months it may be of interest to other classmates to mention those whom I have seen. Willard Brown is with the National Lamp Works of the General Electric Company at Nela Park, Ohio, and is doing very well indeed. We have had some very delightful chats together. Bob Burnap is with the Edison Lamp Works of the General Electric Company at Harrison, N. J. Both of these men have been very active in their work and have

prepared numerous papers which have attracted attention in illuminating engineering circles. My brother-in-law, Donald Perin, who graduated with our Class, is now located in New York with the United States Freight Service Corporation; and Paul Hatch, who graduated in Course II, has become an electrical engineer and is operating an electric public utility in New Hampshire. Paul is just moving into a new home in Wellesley Farms and commuting weekly back and forth to New Hampshire for his work.

"Since you requested that I furnish you with a brief personal account, here goes. I took the examination for commission in the Coast Artillery for the regular service immediately upon graduation, and was commissioned in the fall of 1916. I remained in the service until September of 1925, when I resigned to return to the Institute as a member of the Faculty in the Department of Electrical Engineering. During my commissioned service I saw duty at the front during the war, and after the armistice was ordered to Paris where I served with Professor Jackson on the War Damage Board of the Peace Conference, and later went to duty with the Adjutant General's office in the District of Paris. In October, 1919, I was ordered to Germany for duty with the Department of Civil Affairs, which, in cooperation with the Inter-Allied Rhineland High Commission, controlled the German Civil Officer in the American occupied territory. I remained in Germany for more than two years before returning to the United States. During my army career I had a great deal of duty at the various army schools which culminated in my being detailed as a student officer at Technology in the year 1924-25, when I obtained my graduate degree. As I said before, since September, 1925, I have been on the Faculty of the Department of Electrical Engineering as Associate Professor, and have been attempting to teach the young hopefuls who are coming along the same path we took. It is an intensely interesting job, and also it offers an opportunity for visits from any of the old classmates who come back to Technology. You might tell them that my office is in Room 4-203, and that I am always delighted to see any of them. Of course, there are several other members of the Class on the faculties of various departments here, but I will not mention them because you undoubtedly have asked them to do the same as you did me. I am wishing you all the success in the world in your attempt to extract notes from the Class, the members of which have gone for so long without writing to anybody that they have formed the habit of not writing."

Again our honorable President, Bill Farthing, speaks: "I was glad to have your letter of the thirteenth, and happy to learn that as a Class we are again functioning. As you know, I had no end of trouble in passing English I, or whatever it was, so any notes I send along I would appreciate your putting in the proper form before sending them to The

Review. My latest contact was with Duke Wellington, who is superintendent of chlorination and sanitation for the New Haven Water Company. Duke was in New York working on equipment for a new six million dollar installation that the Water Company is now making. Duke quoted a record of which New Haven is quite proud. The city has a population of 225,000, and in the past two years there has not been one case of typhoid. Credit for this is due to the health authorities and to the Water Company. Duke reported having seen Paul Buxton, who is now in Torrington, Conn.; Stern; Steve Stevens of Reunion fame, (I hope he lasts until the next one); and James A. Tobey, LL.B., Dr. P. H. I now have before me a pamphlet recently published by Dr. Tobey, to wit, 'Liability for Water Borne Typhoid.' Tobey has written standard text books on public health law, and 'The National Government and Public Health.' He is also Associate Editor of the *American Journal of Public Health*, and Contributing Editor of the *American City Magazine*, and is, I believe, a lecturer on public health law at Harvard and the Institute.

"Jack Burbank has been doing some very commendable work with the Technology Club of New York. It was largely through his efforts that the Club was moved from 17 Gramercy Park. Certainly the new Club is a great deal more accessible. Jack recently gave an illustrated lecture at the Club on 'Problems in Building Construction.' This lecture was well attended by a record crowd of about two hundred. Walt Binger recently published a book entitled 'What Engineers Do.' More about this book will appear later. B. C. Boulton was recently transferred to the Keystone Aircraft Corporation at Bristol, Penna. On January 7 about a dozen from the Class of '16 attended a lecture at the Technology Club on Pratt Whitney aeroplane engines. Among those present were Walt Binger, Charlie McCarthy, George Petit, Bill Knieszner, and Jack Burbank. Not long ago I ran into Joseph R. Minevitch, who is now a consulting engineer, located at Douglaston, Long Island. I received the usual Christmas card from Jack Camp, who is located in Mexico City, with the Mexico Light and Power Company. Chuck and I are of the opinion that Raef Alfaro should be excommunicated, for it has leaked out that within the last year he was in New York and sneaked out without making his presence known." — HENRY B. SHEPARD, *Secretary*, 269 Highland Street, West Newton, Mass. CHARLES W. LOOMIS, *Assistant Secretary*, 7338 Woodward Avenue, Detroit, Mich.

'17 E. S. Gorrell, who took his S.M. in Aeronautical Engineering in 1917, has been elected President of the Stutz Motor Car Company of America, after having been Vice-President since 1925. Gorrell was graduated from West Point Military Academy and during the war was the youngest colonel in the service. He was an aviation engineer. Twice he was cited by General

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Pershing for service with the United States air forces in Mexico and in France, where he was chief of air operations with the general staff. Later he was chief of staff in the air service. Gorrell was awarded the French Legion of Honor, the British Distinguished Service Order and the American Distinguished Service Medal, for his war services. He entered the automobile business in 1920, and was a distributor in New England and on the Pacific Coast. Later he was connected with the Marmon Company, became Vice-President there, and came to the Stutz Company as Vice-President in September 1925.

E. P. Brooks of Sears, Roebuck, publishers of the big catalog with the little prices and one of Uncle Sam's best postage stamp customers, was in Cambridge in February inspecting the new Cambridge store of his company. — G. R. Stevens, better known as Rad, is alive and appeared in Boston recently on a grand tour of the country seeking whatever is new in the watch industry. Rad is still with the Elgin National Watch Company of Elgin, Ill., and in addition to his production duties has taken research under his wing.

There would have been thirteen at table at the Alumni Dinner had the '17 table been larger. As it was the four '16 men generously shared their table. Ben Lewis, R. A. Maeder, and Rudolph Beaver were among those present who have not usually appeared. Professor Lobdell at the head table was given due recognition by his erstwhile peers. — RAYMOND S. STEVENS, *Secretary*, 30 Charles River Road, Cambridge, Mass.

'18 February brought forth the second of the '18 luncheons at the Engineers Club. This time the number increased to nine, four more than in January; and even at that, three who reported that they would be present were among the missing. Better luck next time. This indicates a greater interest, and I hope that each month will bring an increased attendance. Those present this month were Lovey Collins, Maggie Magoun, Bill Ryan, Paul McGreenery, Fred Washburn, John Clarkson, Harry Coyne, Ralph Whitcomb, and the Secretary. Let each one of us interest another classmate each month, and before we know it we will have to expand into the main dining room. If any of the Class, who are not located permanently in and around Boston, are in that city on the third Monday of each month, wend your way to the Engineers Club for a 12:30 luncheon and you will find the Class in session.

The Alumni Dinner, as far as '18 was concerned, was rather flat this year as we had to share a table with '19, and even at that they only had one more than we. John Kiley, Eli Berman, and the Secretary were present. It was held at the Hotel Statler and it was unanimously agreed that that location is much better than way down town at the Chamber of Commerce Building, where it has been for the last few years. Let's hope that in

another year a few more of the Class of '18 are interested when the dinner season comes around.

Next come the birth announcements. We have three of them this month. Bill Ryan and his wife announced the arrival of their daughter, Kathleen, on December 15, 1928. From New York comes the announcement of the arrival of a daughter, Mary Suzanne, at the home of Mr. and Mrs. Jack Kennard on December 5, 1928; and also the arrival of a daughter, Rosalind, at the home of Ken and Mrs. Reid on January 31, 1929. Congratulations to all the proud parents. These last two items came in a letter from Mal Eales which arrived just on the zero hour for publication. Also in that letter he told us that Sam Chamberlain sailed on February 20 for another sojourn of three years in France after a short stay in this country.

Mal continued: "Recently when I dropped in to see Clarence Fuller I was treated to an example of efficiency *de luxe*, executive ability, and what have you. It happened to be Jane Clair's supper time, and she, in accordance with established custom, was perched in her high chair. It seems that she had chosen rice flakes for that particular meal, and, as Clarence preferred to sit and talk with a minimum of interruptions, he spread the aforementioned rice flakes out all over the tray of the high chair. Under these conditions the best that Jane Clair could do was to pick them up one at a time, and from the progress noted when I left it looked like an evening's job. I understand that foreign rights to this idea have been applied for in Lithuania, the Bronx, and so on. I have always recognized that this bird Fuller was a clever salesman, but this incident rather reminded me of the definition whereby salesmen generally are described as 'slick guys who sell something they can't deliver to some one who doesn't want it.'

"A Class of '18 dinner was held on February 1, at the Architectural League through the kind efforts of Ken Reid. Among those present were Bill Foster, Ev Rowe, Ned Longley, Sidney Judson, Pete Harrall, Nat Krass, Pete Sanger, Walt Robertson, Jack Kennard, and Ken Reid. [Mal didn't say it, but he was there himself.] Four others of our illustrious classmates sent post cards saying they were coming and we had places set for them. They failed to favor us with their smiling countenances, however, so the rest of us had to dig down to cover the deficit. We have about decided that in the case of future dinners, places will only be provided for those who forward checks. The next meeting of the New York crowd will be at Enrico's on March 4." Evidently New York celebrated the inauguration.

A clipping from *Time* gave us an inkling of what one member of the family of "Ze Heavenly Twins" is doing now and has been doing for some time past. Clifford Longley has been at the head of the legal end of the Ford interests. Many of us noted recently that "the legal department of the Ford Motor Company has

been abolished and its entire personnel dismissed as of next pay day." Yes, that is all very well, but as a member of the law firm of Longley and Middleton, Clifford Longley remains the chief Ford counsel, and with him will be most of the others who so sensationally "lost" their jobs. We are glad to see that the twins's brother can still keep on living and doing good work for Henry.

Let's hope that we will have more news for next month from the New York contingent. It would be great to be able to report lunches or dinners from both Boston and New York each month. Don't forget, the Engineers Club on the third Monday of each month in Boston. — GRETCHEN A. PALMER, *Secretary*, 148 State Street, Boston, Mass.

'19 The Tenth Reunion still holds first place among the news items for this issue of The Review. As already mentioned the committee has officially announced that the Reunion is to be held at the Corinthian Yacht Club at Marblehead Neck, Mass., on Friday, Saturday, and Sunday, June 7 to 9, and it is to be a stag affair. To most of you this announcement will be old news and you have probably decided to attend the Reunion, but in case you have not heard it, here is one more reminder that there is only one Tenth Reunion. We happen to know that it is going to be a good one.

On February 19 the '19 men living in the New York District had dinner together at the Technology Club, the following men being present: George McCarten, George Fleming, Karl Rodgers, Fred Rasmussen, Leo Kelley, Freddie Given, George Patterson, Don Way, Tom Lloyd, Oscar Mayer, Henry Cassidy, Bill Langille, and Fish Gilbert. It was a most congenial gathering. Oscar Mayer announced the plans for the Reunion and a lively discussion commenced at once concerning the best way for the New York men to go to Marblehead, it being evident that all those present planned to go. Now, believe it or not, the airplane was seriously considered, and in fact Don Way was asked to investigate the costs and other matters. After some further discussion the gathering broke up into smaller groups to play cards or chat.

If you wish to become more air wise you will do well to read "Airplane Structures" by Alfred Niles '17 and Joseph Newell published by Wiley. — We quote from an interesting letter from George Michelson. George has recently made quite a circuitous trip around the States and was accompanied part of the way by Duff Slotnik. "It was good to see you, if only for a few moments, and it was a good send-off for my trip across the country. My itinerary included extended stops in Indiana, Illinois, Wisconsin, Minnesota, Oklahoma, Kansas, Missouri, the Grand Canyon, and California. If you ever want a thrilling and terrifying experience, I recommend the burro trip down the Grand Canyon. My stay on the Coast was very delight-

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ful, and included San Diego, Tia Juana, Pasadena, Santa Monica, and San Francisco. The return trip was taken by boat from San Francisco and was a delightful sixteen day cruise with stops at the Canal Zone, Republic of Panama, and Havana. The Canal itself is an impressive sight, and its efficient operation was enlightening, for there is less noise and bustle about the passage of a boat through the Canal than in the parking of an automobile on a downtown street. My entire trip extended over a period of eight weeks and was long enough to be a real vacation after my last business in Chicago, and also long enough to make me anxious to go back to work. As a matter of fact, I was not alone during the whole trip, and it was not my wife that accompanied me. When I left Chicago Duff Slotnik of Course I joined me and the trip was all the better for it. I will look forward to seeing you at the Reunion, if not before."

Benjamin Sherman is mentioned in the Alton, Ill., *Telegraph* of January 19. We quote in full: "Benjamin H. Sherman got by just as he whistled he would. Sherman, a patent attorney, was whistling merrily on his way home early today when two men held him up. Being a former football player at the Massachusetts Institute of Technology, Sherman straight-armed one and kicked the other like a football. Then he went on his way, resuming his whistling. The tune was 'I'll Get By.'" What can we add to this other than to congratulate Sherman?

We learn that Max Untersee has left New York any is now residing in Chestnut Hill, Mass. — Oscar Mayer has just completed building and is now operating a very unique hotel, The Roger Smith Hotel, in Stamford, Conn. It was opened on December 29 and its success has surprised even Oscar himself.

Only after the February Review came out without any '19 Notes did I realize how important they are. I have met a number of men since February 1 and they have all mentioned it. Of course it won't happen again, but in case you think that I am apologizing, let me say that I am not. I am taking advantage of it to suggest that you send in some notes. Why not do it now while the thought is fresh in your mind? — WILFRED O. LANGILLE, *Secretary*, 144 Acme Street, Elizabeth, N. J.

'20 I am happy to record a very pleasant miniature reunion of some three weeks ago when, through a fortunate combination of circumstances, I found myself at the same luncheon table with Ken Akers, Al Burke, Buck Clark, and Perc Bugbee. I'll bet some of your ears burned on that day, for we sure did some reminiscing about the old gang. One of the most exciting rumors which was bandied about was to the effect that Buzz Burroughs was actually engaged, and sure enough, just the other night, on Washington's Birthday, to be exact, I was pleasantly surprised to run across Buzz at the dinner

dance at the Hotel Statler and with him was a charming young lady with what looked like a very new and sparkling ring on the fourth finger of the left hand. I had barely a chance to speak to Buzz — the same old Buzz, exactly as you'd remember him if you haven't seen him since 1920 — so I was unable to confirm the rumor definitely or learn the lady's name. Certainly the circumstantial evidence is strong.

To return to the group at the table, Ken Akers is, as you no doubt recall, with Fay, Spofford and Thorndike specializing in fire prevention engineering, and thereby having much in common with Perc Bugbee who is assistant managing director of the National Fire Protection Association which has its slick new headquarters at the handsome new building at 60 Batterymarch Street. Al Burke is New England manager of the Sharples Separator Company of Pennsylvania with offices in the Rice Building, 10 High Street. Buck Clark has left the Flintkote Company and is now connected with an investment house in Hartford, the name of which I have not yet learned.

You would think that out of this gang I could have wrung some choice gossip about other classmates for your delectation, but I regret to say such was not the case. Perhaps their reticence was engendered by the consciousness of my reportorial capacity — at any rate my stock of notes was not enriched beyond the above and has not been from any other source oral or inscribed. Truly, your poor old Secretary deserves a better fate than this cold, wet blanket of silence which has descended upon him for these many weeks.

My one and I might almost say sole cooperator, Hank Pierce, dropped in the other day to say that he had discovered George Wilson as submaster of Quincy High School and coach of the track team. George has sent several good runners to the Institute, a practical example of the old spirit and one which we heartily commend. — HAROLD BUGBEE, *Secretary*, 9 Chandler Road, West Medford, Mass.

'23 During the past month very little news has come in. However, there are a few interesting items. We learned from Lyman Tremaine, on one of his frequent trips to Boston, that Ed Thimme was married in January. Ed is located in New Jersey. Then, one of our next weddings will probably be that of Dick Bowditch and Miss Mabel L. Rantoul. Although the exact date has not been set, it is expected to take place early in May.

I received an interesting letter from Pete Pennypacker the other day. Pete is now in Washington, investigating the safety of American ships. Here is part of his letter: "It may be that you have heard of my present location and occupation. By this time you are probably aware that next May, in London, an international conference on 'Safety of Life at Sea' will be held. In anticipation of this conference, preliminary investi-

gations regarding the safety of recent American vessels are being held here in Washington, D. C. I have been sent here to take part in this work on behalf of the National Council of American Shipbuilders. Washington is interesting, pleasant and lazy. The last named quality makes it very agreeable to me. My ex-roommate, Samuel L. Williams, II, is now in California, showing the Westinghouse Airbrake Corporation how to speed up. He has suggested the removal of all their airbrakes!"

Allen Isaacson has had a number of adventures since June, 1923. Following is a clipping from the Superior *Evening Telegram* which tells something of his trip to the forbidden country of Afghanistan. "From distant Kabul, Afghanistan, comes a letter from Allen Isaacson, Superior man who is believed to be one of the few remaining foreign men in the Afghan capital. The letter was received by his mother, Mrs. J. A. Isaacson, 6322 John Avenue. This unusual and interesting letter is dated November 7, and is postmarked on November 28 from Chaman, India, which is a mail exchange in India for mail from the Orient. The letter arrived in Superior on January 4. Mr. and Mrs. Isaacson, who are touring the world in a car, were staying at the hotel in Kabul when a revolution broke out. Hope had been almost abandoned when British army planes rescued Mrs. Isaacson from the hotel in Kabul, but the men were left behind to defend the post, and among them Mr. Isaacson. The letter received from Mr. Isaacson reads as follows:

"I am up in the wilds of the Himalaya Mountains, so far from civilization that we haven't heard yet who was elected President of the United States and probably won't for several weeks yet. This is the new country of Afghanistan that has just been opened to the world by the new king, and we are the thirteenth and fourteenth Americans to enter the country since the beginning of time, and my Ford is the first Ford to go over the two hundred miles of road from the frontier of India to the ancient city of Kabul where camel caravans have been passing for the last three thousand years on their way from India to Europe. The king is attempting to modernize his country and bring it up to the rest of the world, but that is a long job with these backward Oriental people. We had a Turkish bath today in the king's baths at the Persian Embassy. Quite a novel idea and very interesting. This king's grandfather had 300 wives, and we are living at one of the palaces of a hundred wives or so. The present king has abolished the plural marriage as he had so many relations he couldn't count them. His father had several hundred brothers and sisters and there was a lot of quarreling about who should be king, but this man was the most capable of all the relations, and has become king by mutual consent which is a great thing for the country. This town is 6,600 feet above sea level, and as the mountains are dry and barren there is no fire wood and no coal in the country,

1923 *Continued*

and therefore there is no heat except that of the sun in the daytime. At night we have to go to bed to keep warm. We have to go back to India before it starts to snow up here as there are some high passes about 12,000 feet to cross on the way back." — ROBERT E. HENDRIE, *General Secretary*, 12 Newton Street, Cambridge, Mass. H. L. BOND, *Assistant Secretary*, 18 Greenwood Avenue, Hyde Park, Mass.

'24 From Bill Robinson, our Class President, comes the following letter: "In the midst of Senior Week festivities, 1929 seemed remote. But *tempus fugit* (this is not an acquired Harvard P. G. touch, merely a recollection from high school Latin) and the '24 Five Year Reunion is near at hand. Some sad experiences at the Institute taught us that we got out of something whatever we put into it. The foresight and planning of your '24 Reunion Committee is already showing itself in the response evidenced on every hand. I know from personal contact that the committee is doing a wonderful work. They and you will feel happy in the realization of our hopes on May 31, June 1 and 2.

"There have been in the ranks some rather outstanding achievements and pretty much success for the rank and file. If I were asked to comment on the activities of '24 men as a whole, it would be to speak of the rapidly depleting roll of those professing bachelordom. This is emphasized to me particularly at '24 gatherings where I vainly try to rally my fellow freemen to the banner but each time with less and less success. This is discouraging, but the announcement of a divorce here and there is reassuring. Chick and Greg, can we be wrong?

"I wish each individual all good luck in his pursuit of happiness. This done now through the columns of The Review. The Review is a good magazine, but I'd rather tell you the same personally at the Reunion." — HAROLD G. DONOVAN, *Secretary*, 139 Girard Avenue, Hartford, Conn.

'25 From the Boston *Evening Transcript* of February 2, we learn that Henry Hibbard is engaged to Miss Ruth Hampton Drown, of Newton Center, Mass. Miss Drown is a graduate of Milton High School, and of Miss Neil's Kindergarten School in the Class of '24. — Don Yakeley is still enjoying living at the Technology Club. One night I tried to persuade him to eat there with me but he insisted on going to Child's; said he had to have his meatless beef stew and butter cakes.

It's good to hear from Roger Ward again. He says that any time he wants a little exercise he steps out and shovels a foot or so of snow. I wish he would send a bit of it down here, as the only time I went skiing I ran onto a rock halfway down a hill. It didn't hurt the skis much. — Roger Parkinson and I have been helping Don Wheeler with the design of machinery for the new plant his company is installing. After the plant is

operating, Roger and I will have to go on a trip of inspection to see how our work looks. — FRANK W. PRESTON, *General Secretary*, 102 East 22d Street, New York, N. Y.

COURSE II

I'll put Course II at the top of this, not because it is going to be about Course II, but just because that's how I used to start it back in the good old days when several of our mechanical engineers used to exercise their literary powers. The heading of this really should be "Chronicles of E. W. Collins," because Ed is the only one who has written for months. I quote from his letter written on stationery of the Hotel Adolphus, Dallas, Tex.: "Last week I was in Tulsa, Okla., and stopped off for a couple of nights with Virgil F. Halliburton, purchasing agent for the Spartan Aircraft Corporation. Hal is the same old Hal and is now holding down a real job, having a couple of stenographers, and so on. While there he took us up for an airplane ride, and much to my surprise I am still alive to tell the story. All we did was what Hal called straight flying, but to me it couldn't have been worse if we had looped the loop. Maybe we did for all I know, as I was petrified the whole time. Hal handled the plane in good shape, in spite of his reputation as an automobile driver.

"While in that country I spent two days inspecting the lead and zinc mines. They surely were interesting, but I can't say that I enjoyed the trip down and up the shafts in pails or cans, as they are called. They are only thirty inches in diameter by thirty-two inches in height, and the shafts are only four or five feet wide. What's more, they travel like the dickens. I almost passed out the first trip down. Besides spending time in mines and in the air, I also spent a few days in the Oklahoma oil fields, and all of this in connection with business. Not so bad! I am now on my way home to Baltimore, Md., and tonight I leave for New Orleans, then Birmingham, Atlanta, and home."

Here I am with nothing more to say, so I'll let it go at that. If any of you guys can forget your burdens long enough to remember your little classmates, you might write to your Secretary. — ROGER WARD, *Secretary*, 320 Washington Avenue, Kenmore, N. Y.

COURSES III AND XII

It is again time to endeavor to assemble some news of members of our Course, but once more such news is very meagre indeed. Letters to several of the men have produced absolutely no returns. As usual, however, we have some news about George B. Blonsky, although it is very difficult to keep him within sight. First he is in Worcester, Mass., then in Connecticut, and a few days later down in Pennsylvania somewhere. He is still with the Dorr Company and is certainly obtaining a great deal of experience in all lines with that company.

Through the kindness of Professor Hutchinson, who has just returned from several months in South America, I have

obtained some news regarding Augusto S. Bruna. His address is now Santiago Sabioncello, Oficina Brac, Iquique, Chile, and he is employed by one of the large nitrate companies. Ever since graduation he has been engaged in underground mining, but has just recently given this up for good and is about to try his luck in the nitrate field, which, he points out, is still mining. Nitrate mining seems very attractive to the members of our Class, with both McEndree and Sherman also engaged in that work in Chile. — F. LEROY FOSTER, *Secretary*, Room 8-219, M. I. T., Cambridge, Mass.

COURSE XIV

Avoiding cumbersome apologies, here we are again. The first item dates from September 15 last. On that day Martha Valentine Ware entered the world. Since she is five months old at the present writing, I shall present current statistics: eyes, blue; hair, blonde; weight, fifteen pounds (a gain of seven pounds); disposition, cheerful. My employers, the United States Chain and Forging Company, sent me to Pittsburgh from York to supervise the installation of a small testing laboratory. While there I met John R. Robertson, V, and Jack Coulter, II, '27. Respective secretaries please note. Robertson is with the sales department of the Carnegie Steel Company at the Pittsburgh office. Coulter is with the United States Chain and Forging Company at the McKee's Rocks plant, near Pittsburgh.

Having disposed of the personal part, I can devote some uninterrupted space to a letter from Clarence Thulin. He says: "Once in a great while I get a brief note from Frank Klein which indicates that he is still in the air service at Selfridge Field, Mich. That is about the limit of the news that I ever get from any of our old gang at the Institute. I had a card from him once from some little town down in Mexico, saying that he was on his way to the National Air Races at Los Angeles. I am still here right where I landed when I left Boston. My work has shown some signs of improvement during the last three years, and it is interesting even if it is rather hard to be buried in a small town way up in the north woods. I am now definitely engaged in plant operating in the capacity of assistant production supervisor, and I rather enjoy trying to improve methods of working and introducing new systems of operation.

"This town has its good points in the summer time, with the St. Lawrence a couple of miles from the house, and the Adirondacks about forty miles the other direction. During the summer, usually some of the single fellows from the staff at the plant get together and rent some cottages out on the St. Lawrence. This fall I was out of town practically every week-end, spending most of them in Montreal which is a drive of about three hours from town. That is a great town for finding something to do, either with or without a girl. It's far enough from Massena so we don't need to worry about meeting our next door neighbor there, something we don't care about doing.

1925 Continued

"The winters are not so hot because we are snow-bound most of the time and we have to dig up some excitement as best we can by running the Ski Club, and other similar activities. I was so busy this year that I could not even get home over Christmas, so the winter will seem longer than ever. For one thing, the weather is the mildest it has ever been at this time of the year. We have had very little zero weather, and right now it is above freezing during the middle of the day. I am still single, strange to say, and as remotely removed from any ideas of matrimony as ever. It is a hard town in which to stay single, especially during the long, cold winters, but I am still standing the strain." He signs himself, "C. Thulin, Course XIV, Retired."

The statistical pie of Course XIV shows out of nine possible sections, three, including the Secretary, on the active correspondence list, making a bright sector of one-third; two, who have been heard from indirectly, or by accident, making a shaded sector of two-ninths; and four silent, which makes a dark sector of four-ninths. This does not include associate and non-associate members. It would be interesting to compile the correspondence statistics in this form for the entire registered graduate body. I wonder if many classes or courses would have a smaller dark sector than ours of four-ninths. This is more a hint than a challenge. Let's have some more pies. — HOLLIS F. WARE, *Secretary*, 243 Atlantic Avenue, York, Penna.

'26 Even the hardest heart will be moved by the persuasive, eloquent letter that the Secretary has received from Eben Haskell, who was, to refresh your memory, and still is, class administrator of the 1926 Endowment Fund. It is commended to you for your close attention:

"Back in 1926 we were very idealistic. We had visions of a \$100,000 fund; we advanced the idea of annual subscriptions rather than compulsory insurance payments; we had the Class divided into groups of twenty, each with a leader, in order to maintain more intimate contact. In short, we attempted to have the fund a purely voluntary, spontaneous affair, with no element of compulsion attached. And the result of our idealism? Alas! At the end of the first year's collections, 85 members (396 signed up) fell by the wayside. After the second year, an additional total of 66 defaulted. By strenuous efforts this has now been reduced to 53, so that at this writing a total of 138 members of the Class of '26, of the 396 members who joined our fund, have failed to meet their agreements — per cent! One doesn't have to be steeped in Tolstoian gloom to make lugubrious prophecies over the future of our Fund. It's not a question of how much it will be, but how little.

"To those of the delinquents who have suffered misfortunes or acquired serious obligations, and consequently have been genuinely unable to make their payments, these remarks do not apply. Many of these have been splendid enough to

write and explain their situation to us, and we who are trying to administer the fund certainly are grateful. It proves to us that they are still interested, and it shows us just where to concentrate our efforts. But to those delinquents who are simply too careless to notice one of our many letters, or who are too indolent to trouble themselves to the extent of writing a check, we hope that this and subsequent notices will merit some favorable action. I suppose that twenty-two years from now somebody will be scurrying around seeking large contributions from members of the Class who have been so fortunate as to achieve material success, in order to bring our Fund back to the \$100,000 goal. Must the strong always carry the weak, must the original, vital intent of this Fund — that everybody contribute a small, just, equal share — be acknowledged a failure?

"Only last Saturday evening at the Annual Alumni Dinner in Boston did President Stratton speak with approbation of the efforts of the recent graduating classes to create endowment funds which, in a way, partially compensate for the inadequate revenue received from tuition fees. Are we to be one of the classes destined to prove the unfeasibility of this method, and that educational institutions must entirely survive on the beneficence and munificence of wealthy Alumni? It all depends on the response of these 138 delinquents this year, and of the entire 396 members during the next twenty-two years." The Secretary can say no more than voice his sincere hope that the Class will not default in the first corporate duty it has assumed.

F. P. LaBoon, whose address is United Fruit Company, Santa Marta, Republic of Colombia, S. A., recently sent in the following report of engineering as she is practised in his locale: "Engineering in Colombia may lead one into some very interesting experiences. The most recent occurrence has been, as usual, a would-be revolution. The engineers had to turn their office into a fort, and themselves into soldiers, for purposes of self-defense against a mob of six hundred natives armed with machetes, shot-guns, and every conceivable weapon available. These natives had been incited against the 'exploiting Yankee' by Reds who have been trying to cause trouble for some time. The siege lasted for six hours, until a detachment of soldiers arrived. Result: two minor casualties for the engineers; several natives killed." Those of the Class who are suffering from ennui may do well to emigrate to Colombia and indulge in gorilla warfare for amusement and stimulation.

The evanescent Wick Eddy, who recently and breathlessly stuck his head in our office for a split second, has forwarded a report of his recent and breathless career. He has just accepted a position with the Texas Gulf Sulphur Company at their New York office, as assistant to the assistant to the President. He issues an offer to all those suffering from spring fever or bad liquor to write to him at 41 East 42d Street and he promises immedi-

ately a free sample of sulphur and molasses, guaranteeing it to be good sulphur and therefore of great therapeutic and curative powers. He has just returned from Texas. After reading his letter the Secretary's idea of Galveston is a place where one dines on half a quart of oysters, plays golf, rides horseback, mines sulphur, and makes profitable forays on the capital wealth of the city through the technique of penny ante.

Wick was in Pittsburgh recently and encountered Mark Greer, a prosperous citizen of that city. Mark, he reports, is building a palatial mansion for his wife and himself.

The omniscient Boston *Evening Transcript* recently reported the engagement of Edward Huckman of Methuen to Miss Eleanor Prescott of Braintree. Huckman is soon to leave for Tulsa, Okla., to be connected with one of the branch offices of the Foxboro Company. It also reported the engagement of George E. Wingate to Miss Helen Hardy of Malden. Wingate is now connected with the Eastman Kodak Company. — Word also comes of the engagement of J. E. Chaudruc to Miss Dorothea B. Kindler of New York City. Chaudruc is at present with the R. C. A. Photophone, Inc. — It is interesting to know that several '26 men are active in the Technology Clubs in various parts of the country. John E. Longyear is Treasurer of the Detroit Technology Association, and F. Gurney Fine is Secretary of the Technology Club of Philadelphia.

The Secretary has just received a cordial letter from Frank Schreiner, late exponent of *bel canto* and Koussevitsky of the Glee Clubs. He speaks of encountering Austin S. Ford of Course II, now with the De LaVergne Machine Company, manufacturers of refrigerating machinery, in Erie, Penna. He also writes of a meeting with the omnipresent Bennie Levinson '27, and later he saw Al Hall of the same Class. Members of the Class of '27 who read these notes, and of course they do, will be interested in these items. Frank celebrated Christmas by having the influenza, and that prevented him getting back to Boston. He anticipates coming on in June to "stand up" for a friend who is getting married.

Mary O. Soroka of Course I recently wrote in to The Review for information about an etching reproduced on a cover. She gave her address as the Hydraulic Laboratory, College of Mechanical Engineering, University of Wisconsin, Madison, Wis.

At the Annual Alumni Dinner on February 16, the following men were at the '26 table: Cedric Valentine, George Hannauer, Jr., Alden W. Peterson, C. M. Pickett, Jr., G. Malcolm McNeil, W. A. Cook, F. M. Toperzer, M. L. Radoslovich '25, W. E. Carter, and R. T. Dawes.

With compelling, though he hopes pardonable, exuberance, your Secretary records his own engagement, announced February 23, to Miss Elizabeth Parks, Wellesley '29, of Asheboro, N. C. Der Konvergenzpunkt, as you might expect, considered this as a genuine scoop, and forthwith executed a spring dance, sing-

1926 Continued

ing at the same time a lively Elizabethan lyric written for pastoral pipes. But enough and away; the secretarial rule that these notes be written impersonally will not again be broken until der Konvergenzpunkt sings an epithalamium. — J. R. KILLIAN, JR., *General Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE II

The only news of classmates that has come to my attention in the past month has been the marriage of Dick Connet, who was to have taken unto himself a wife on February 7 in the person of Ethella Dexter Morgan of Providence, R. I. The couple will be at home after March 1 at 682 Public Street. In addition to the flood of personal congratulations that Dick has fallen heir to, the official felicitations of the Course are most gladly extended.

Jim Moon, ex-'26, was married on February 22 and went to Havana on his honeymoon. He is now in business selling electrical refrigerators and oil burners in Plainfield, N. J., and surrounding towns. I just bumped into him in the hotel lobby as he and his bride were making a bee line for the boat. — JOHN B. JACOB, *Secretary*, 1037 South Kenilworth Avenue, Oak Park, Ill.

COURSE V

Some little news has been piling up. Van Blarcom broke a long silence to send a new address and a few odds and ends. It may just be that Van has quit the ranks of the apartment dwellers out there in Great Falls, because a street and number head his letter: 1126 First Avenue South.

"News is slim," he wrote last December. "I had a wonderful trip through Yellowstone last summer, but it's no use to write about that because Lobby exploited all that stuff. He told all there was to tell and more too, I suspect. A real old cow country down that way. I can't describe it. Charlie Peterson '25 was here for a visit a month or so ago. He is with the Chicago, Milwaukee, and St. Paul Railroad at Miles City, Mont. He said in his last letter that he hoped to hit Chicago for a visit soon and to see Howard Emerson there. That's all I know about Emmie. What is Bruce Humphreyville's address? Where, why, and when is D. K. Taylor? I got a Christmas card from T. J. Scott from Alabama." Van, don't you know the percentage of people who never read those articles in front of *The Review*? And that dope on Yellowstone would be just the hot stuff for '26 notes, — they run a bit toward the travelogue style. And certainly we should see America first. Besides, I don't believe Lobby will ever pardon you for that allegation of padding. But the Chemikersekretär certainly took heart to hear from one man with a growing curiosity about his recent playmates and the necessary ambition to satisfy said curiosity. So much for Abou Ben Adhem Van Blarcom. May his tribe increase.

That all happened the first of the year. Ernie Baxter, in a confined-with-mumps moment in late January, wrote eight

pages on octavo paper, plus an appendix in the shape of a photograph of Joan, age one year. She is now nearly as tall as my remembrance of her dad, and certainly rounder. Take away the rattle and kiddie-kar and it becomes at once evident that Joan will not matriculate at the Institute; Smith rather. Bax said he could write a small novel about the daughter, but knowing the propensities of fond parents and being a Kodak man, he condensed it into the photo. After the mumps came intestinal gripe, but Ernie went right ahead in a cheerful way to tell me about the trips to Oklahoma City and Sharon the past two summers, to congratulate me further for good sense in getting married, and to say he was feeling O. K. again. So much for Course B's family man.

Who's going to the spring meeting in Columbus? The Chemikersekretär may be able to swing it yet. And isn't anyone ever going to publish or read a paper? Out in the back yard right now rests Fanny, our 1923 Chevrolet touring car purchased December 14 for the round trip, Washington to Boston, successfully completed and marred only by the loss of her rear end in Baltimore on the way up. It may get us to Columbus. It will get us there if there is such a thing as a solution to the problem upon which we are now engaged. — I. R. MACDONALD, *Secretary*, 2301 Cathedral Avenue, Washington, D. C.

'27 Ten of us turned out for the Annual Alumni Dinner at the Hotel Statler on the night of February 16: George G. Morrill, Joseph A. Burley, Harry Franks, Paul T. Wilson, James Chirurg, Roger Pierce, F. E. Anderson, W. H. Hutchison, H. A. Moineau, and your Secretary. George Morrill, as everyone, knows, is working in the Department of Biology and Public Health at the Institute; Joe Burley is working for his father at the Boston Insulated Wire and Cable Company, Harry Franks is with Lamson-Crane Company who have a string of seven men's furnishing stores in this part of the country; Jimmy Chirurg is, we believe, still at the Harvard Business School; Roger Pierce is at Worcester with the American Steel and Wire Company; Hutchison is in Providence selling du Pont's Pyroxyline and Lacquers; and Ham Moineau is still at Marlboro.

Our notes were hastily scribbled on an application blank for Tech Show tickets, and the transcript from them may have the wrong girls in the items which immediately follow: Miss Ruth Thomas of Brookline announced her engagement to Joe Burley, the wedding to take place some time around June 1. Joe also reported that Bob Bigelow's engagement was about to be announced. He did not remember the lady's name, but he thought that her first name was Helen — Helen of Troy perhaps. Bob is in Seattle with the Hobart Manufacturing Company. Ham reported that he was best man for Darcy A. Young (Si) last June in Rochester, N. Y.

THE TECHNOLOGY REVIEW

Benny Levinson was reported to be an assistant merchandising manager of a Los Angeles, Calif., department store and was soon to be married to a Des Moines, Iowa, girl. — Arthur Samuel, Larry Harris, and Jake Rabinovitz are all in New York working for the city. — Franks reported that when he was in New York some time ago he saw Lou Baker who was for some time our Class President. He had been in Africa and was about to leave for China. On these excursions he has been shipping as a stoker and as a sailor. Lou seemed to think that it was a great life.

From Mount Tabor, N. J., came a letter from Red Earl which your Secretary abstracts as follows: "I'm sailing for Cuba tomorrow and I'll let you know my address as soon as I can, but until then hold *The Review*. I ran into George Hoffman and Carl Peterson in the Lackawanna Lunch Room in Hoboken last week. They are working for Jackson and Moreland, who are attempting to make a modern railroad out of the Lackawanna. Toby DeNapoli left the Munroe Calculating Machine Company a week before I did and he has gone with Warner Brothers in the talking movie department. I see Ernie Dodge quite often. He's well and still in his right mind. He's helping the American Tel. & Tel. Company give us the bum service we get."

It is with deep regret that the Secretary announces the death of Miss Katharine Rand on February 19, from tuberculosis. It will be remembered that she received her Master's degree in Chemistry in 1927. Miss Rand was graduated from Wellesley College in 1924. Her home was at 71 Warren Street, Needham, Mass.

A letter from Al Billings in Cumberland, Md., reports that Dexter Coolidge left Cumberland two months ago to return to his home in Chicago. — That, we believe, concludes our notes for this issue. What we need is more material. Won't you please help us out? — JOHN D. CRAWFORD, *Secretary*, 7 Goodwin Place, Boston, Mass.

COURSE I AND XI

A little note came from Al Hall, XI, linking his name with that of Miss C. Phyllis Butterfield, and then a newspaper clipping came saying that Miss Butterfield is to be married to G. Albro Hall of Cleveland, Ohio. Congratulations, Al, to both you and the girl. When that event happens Course XI will be 100 per cent married. When you travel between Boston and Cleveland, Al, stop off and give me a call at the New York Telephone Company. They will find me, or better still arrange a stop-over of any duration. This also applies to any of the gang who happen to travel through Syracuse.

A letter from our old Civil Engineering Society Secretary shows that he is still among the living, and going strong. However, he must live with a group of foreigners he has so much French, or Spanish, or whatever it is, in the letter that I dare not print all of it. I'll never repeat anything I can't understand. I will give the important points, however.

1927 Continued

"My contact with you has been unpar-donably lax, due in a great measure to the absence of *The Review*. I have recently received three copies of that wayward magazine, and a perusal of Course I news has instigated my correspondence.

"It is quite enlightening to learn that most of our former classmates have risen to skyscraper heights in the profession. O great Allah, to be a chief injun-ear, a general super-, maybe a consultant, or an expert of something or other. Believe this, late fellow sliderule pusher, this engineering game is just too bad; deplorable at times, yet fascinating at its best to put a fellow in a second conditional condition (consult Einstein). Since dislocating myself from Technology I have passed through all the stages of most types of highway bridges, in fact I have reached the point where such structures have become inseparably assimilated to my constitution. I am at present located on bridge construction, six of them, steel I-beam, reinforced concrete beam, and reinforced concrete slab types, in eastern New York State. Of course I have to give some precious attention to my nifty Chrysler, mostly polishing. There's a reason." That's from Reggie Jacobs.

No more news this month. Send some in. There are two more issues this spring, so let's get busy and have a real column of news. — LEROY G. MILLER, *Secretary*, 202½ Hubbell Avenue, Syracuse, N. Y.

COURSE II

John Crawford very kindly sent out letters to the ten men listed in last month's column, and to date we have received one reply, but it is rather early to expect many replies, because at the time of writing this the March Review has not yet been placed in your hands. Al Billings was the first to reply. We reproduce below portions of his letter. The deleted portions are in the nature of a pleasant haranguing and are omitted, not censorially, but because their subject matter is deemed irrelevant. "About a month after graduating I went to Philadelphia where I worked for about eight months designing dies for auto body work. Nothing exciting about that, but along in March, 1928, I came to Cumberland, Md., to take a position with the Kelly Springfield Tire Company in the development department. Since being here I have met several former Technology men among whom are Ray Bete, Don Chase, and Roy Copley, all of the Class of '26, and all with Kelly Springfield. Naturally we see a great deal of each other, and our motto is 'When bigger and better tires are built, Kelly will build them.'

"Along in October I decided that a bachelor's life was terribly lonely, and suiting the action to my thoughts, I married the prettiest and best little girl in Cumberland on the sixteenth of that month. We were in Boston for a short time on our wedding trip, and while we were there we managed to visit Technology and note the several latest additions and improvements. I'd like to hear from some of my former cellmates, either

personally or through *The Review*." Congratulations, Al, but you were a little late in letting us know of your marriage. Your remark about better tires may stir up an argument with some of the boys in Akron.

Sid Badger, another of the ten listed in the March Review, saw John Crawford at the Institute and reported, laconically, "No news." Sid is taking graduate work at the Institute. — Let us hear from the following men shortly: Lt. Albert H. Burton, Johan A. Carlson, Theodore E. Casselman, Jr., Manuel R. Castellanos, Laurence H. Coffin, Ronnoc H. Connor, Carmer Criswell, Louis Coulter, James E. Cushing, and Harold A. C. Dahl. Supplementing this request, a letter will be written to each of these men.

Your Secretary had a pleasant chat with John Crawford on the afternoon and evening of January 16 when it was his pleasure to have Boston on his itinerary. Fortunately that was the date of the Annual Banquet of *The Tech*, and a very pleasant evening was spent with the younger scribes and several Alumni. — DAVID R. KNOX, *Secretary*, 13505 LaSalle Boulevard, Detroit, Mich.

'28 Jim Allen succeeded in pulling a fast one last July 14, barely a month after graduation. He has just let us in on the fact that he was married on that momentous date to Miss Virginia Daffan at York, Maine. Congratulations, Jim, but why be so stingy with information of this big event? — Peat Peatfield reports that the 1928 delegation at the New York Edison Company is still intact and that they are all loyal members of the New York Technology Club. Jim Cullen has been noticed heading for Boston often to see his "big moment" as Peat expresses it.

Frank McGuane is all steamed up over his job. Some time ago he was transferred to the long term estimates section of the New York Telephone Company and says that he sees great possibilities in the work. From Frank we learn that Jack Chamberlain is still plugging away at Harvard and finding his work in the medical school very much to his liking. — Bill Slagle, according to reports received, is carrying 1780 hours and doing a 760 hour thesis. Hats off to Slagle and Slagle, gentlemen!

My slim sheaf of Class Notes for this month contains a very interesting epistle which arrived by air mail from three of our '28 fledglings now in the Cadet Detachment at Brooks Field, San Antonio, Texas. Points of special interest are included in the following paragraphs which are the mutual linguistic efforts of the three men. "The amanuensis, one Hank Harris ex-'28, since he left the Institute in May, 1927 because of poor health, has done little or nothing prior to reporting here for duty in June, 1928. That is with the exception of playing golf, tennis, a little swimming, and driving about 1200 miles a month. Ev Lester has done darn near nothing since graduation except to try to be a model flying cadet. His attempt has been under-

mined by a trip to Mexico and other innocent (?) pastimes. Desmond Shipley, also an ex-'28 man, is four months behind Lester and Harris at Brooks. Since he left the Institute he has worked with Chase and Gilbert, constructing engineers, in Boston and, after a short illness, started with the New Jersey Highway Commission laying out streets in the swamps and wilds of Paterson. He finally wound up with the Corps of Engineers as chief of party on a hydrographical-topographical survey on flood control work in Vermont. Ship spent most of the summer in water up to his armpits while dead cows floated past him on the Winooski. (You can believe it or not.) Among the other Technology sojourners in Texas is Jack Schroeter, who, after transferring from Cornell and spending one year at the Institute, came down to Brooks in the class of July, 1928." — GEORGE I. CHATFIELD, *Secretary*, Room 11-203, M. I. T., Cambridge, Mass.

COURSE I

Letters this month brought news directly from Luby and Disario. Jack's letter runs like this: "I returned to St. Paul about a week after graduation and a few days later underwent an operation. I spent two weeks in the hospital and about two months more convalescing at home. About the last of August I went down to San Benito, Texas, to take a job as steel foreman with the L. E. Myers Company of Chicago." After a description of this job which we were able to include in the December Review, thanks to Ken Clark, Jack goes on: "After about a month on that job I got fed up on things in general, including the occasional seventeen-and twenty-hour days, and the unceasing rain, so I checked out to get back to a climate where it wasn't necessary to use a stepladder to read the thermometer. Before I left I took a jaunt down across the Mexican border, only twenty miles or so, to see how things looked south of the Rio Grande. The little town of Matamoros, just over the border, has an imposing cathedral and about forty-five less imposing saloons, in which anything in the way of liquor from the worst to the best may be had.

"I stopped in Chicago on my way north in the hopes of seeing Ken Clark, but I was given a bum steer and landed about eighty-five blocks from his place. It was time for me to catch a train then, so I didn't get to see him. The market for engineers was rotten when I got back to St. Paul, resulting in an extended loaf for me. I filled out about three months of the time working in a creamery where I learned to play a wicked obligato on the comptometer. I am now a computist in the office of the record engineer of the Northern Pacific Railway in St. Paul. We are revising completion reports as per order of the Interstate Commerce Commission." Luby's address is 1223 Juno Street, St. Paul, Minn.

Disario is still with the tunnel division of the Board of Transportation of the City of New York. His headquarters are the field office, and he lives at 203 West 117th

Street. Gabe's experiences in tunneling run like this: "My duties have been varied and sometimes interesting. I have had to compute stresses in systems of sheet piling, check the design of the underpinning of a large retaining wall under which the subway goes, check street decking design, and so on. I have charge of the monthly estimate for our half of the section and got some good experience. We had no definite forms or system for making an estimate except for the classification of items, so I had to make up forms for computations, and so on. We have plenty of tables of offsets of steel, track benches, side walls, and so on, to compute for the field parties. I had occasion to delve into clearances of cars on curves, simple and transition, too. When I first came here, they put me out in the field for a couple of months, but now I'm sunk in the office. Occasionally I have the opportunity to get out in the field to run a gun or something when they are particularly in need of men due to someone's celebrating too much. If you want an odd experience, be in a rock tunnel when they are shooting in an adjacent and connected one. Don't we have fun? The air vibrates, pressing your eardrums in and out and you can feel the suction on your mouth. Sometimes if you are located right, the force gives you a very perceptible push. The first time I experienced it I didn't even know they were going to shoot, so the effect was even more marked." — GEORGE P. PALO, Secretary, M. I. T. Dormitories, Cambridge, Mass.

COURSE X

Wonder of wonders! Your Secretary can acknowledge the receipt of two letters within the last month. Fellows, you will just have to hold back on all those letters or I'll need an assistant. Instead of sending me a letter every week, just send one once a month.

First comes a letter from Jim Donovan with considerable news, albeit extremely difficult to decipher. Jim should send

along a deciphering code when he mails typewritten letters. However, we have an expert linguist here in our company and he translated it, claiming that it was Sanskrit or some allied language. From Jim comes the news that Smitty is with Arthur D. Little and Company becoming an expert in leather technology. While not very far from the Institute in another direction Haberstroh can be found toiling for Lever Brothers. Then about Gus Stachelhouse we learn more or less. To quote Jim: "The other day yours truly saw him try to run down two of our best secretaries (and we have so few good ones, you know) with a hand truck that some careless janitor let him take.

"Carl Lockhart is living up to his reputation by showing the world how to get good data from the apparatus of the Dayton, Ferre, Hoak combine. He had to rebuild it entirely, but otherwise it was all right. Phil Taylor is still fooling in the laboratory and holding down a desk in memory of that thesis he and Southwick did. The X-A gang are in town after having run heat and material balance until they are tired of them and then some. They all admit to being skilled plumbers, especially Dayton. How that man can plumb! They all enjoyed Buffalo and were very much surprised to find so many semi-soft drink places there. Marks are just out and you might assure the boys that Eames did a fair job on Course X this year, but not quite as thorough as he did on us last year. Professor Hitchcock also got rambunctious and flunked eight men. It's a good thing some of us graduated last year."

Mike Comperchio next steps up with a bit of good news. He has landed his B.S. and now is just rearing to go. Until he takes up some definite work he is doing a bit of research on carbon pack at the Institute. Hurst is pursuing his Master's Degree and is engaged in some sort of a mathematical thesis. What bearing the result will have on the new Einstein Theory is not yet apparent, if at all.

Let me remind you again, fellows, that this is your column and if you want to see it appear every month in the Class Notes it is up to you all to send in news of yourself and any of the fellows. — ALBERT J. GRACIA, Secretary, 222 West Market Street, Akron, Ohio.

COURSE XIII

Calc, alias Bill Grunwell, is now located with the Newport News Shipbuilding Company at Newport News. As Bill says: "I'm down here in the 'Old Dominion' working for the builders of the United States ships *Maryland*, *California*, *Virginia*, *Iriquois*, and many other good ships. I'm in the technical division of the engineering department. I have to make all sorts of calculations and work out problems connected with the machinery. Much of the work is very similar to Engine Laboratory at the Institute. I like the job and the men I am working with. I took a vacation recently and went home to Punta Gorda, Fla., where I had a great time. I went for a cruise in the sailboat and encountered some heavy blows and heavy seas which seemed quite fine after being away from that sort of thing for such a long time."

This Course is so small that news of Bill and myself will cover two-thirds of the group. I am now working with the Lukenbach Steamship Company who operate a large fleet in the intercoastal trade to the West Coast. I started with this company the first of the year and am working half the week in the planning department which supervises the loading of ships, while the other half of the week I work in the delivery department where freight from the Pacific Coast is delivered. Where I go next and what department it will be, I don't know, but I am enjoying myself. Allan Gwathmey of Course XIV is now living at the Solvay Club at Syracuse, N. Y. He was formerly in Richmond, Va., at 1624 Monument Avenue. — GILBERT J. ACKERMAN, Secretary, 2010 Newark Avenue, Brooklyn, N. Y.



Technology Association of Northern California

THE second meeting of the year was held on February 26 at the Engineers Club in San Francisco, with eleven Alumni present representing eleven different classes. J. E. Woodbridge '93, President of the Club, gave a talk on the building of the Pecon Valley Power and Light Company system in the West Texas oil fields. This job involved complete design, ordering material, erection, and starting of operations of a 22,500 K.V.A. steam turbine generating station, and the building of 100 miles of 66 K.V. transmission lines, substations, and distribution system in three months time. So far as we know, this constitutes a world's record for work of this nature.

The next meeting will be held on March 26, 1929, at the Engineers Club, when Charles Walton '13 will hold forth on the advantages of automatic telephones as opposed to the manual system, neglecting the ornamentation and other feminine characteristics inherent in the old style telephone exchange. — JOHN K. HELLER '15, *Secretary*, Ford, Bacon and Davis, Inc., 58 Sutter Street, San Francisco, Calif.

Rocky Mountain Technology Club

At its annual meeting, held on January 17, 1929, at the home of Russell P. Reynolds '06, the Rocky Mountain Technology Club elected the following as officers for the ensuing year: President, Sidney S. Emery '93; Donald H. McNeal '23, *Secretary*, 523 Sixteenth Street, Denver, Colo. Meetings this year will be held monthly at the homes of various members. Talks by the club members, sketching their professional careers, which proved of such great interest last year, will be continued at the meetings this year. Visiting Alumni are cordially invited to attend these meetings, about which further details can be obtained from the new Secretary-Treasurer, Donald H. McNeal, Telephone Keystone 2151. — DANA E. KEPNER '21, *Secretary*, 420 State Office Building, Denver, Colo.

Washington Society of the M. I. T.

The Washington Society of the M. I. T., held its annual banquet at the Wardman Park Inn on February 12. C. Francis Jenkins, noted Washington inventor, in an interesting and instructive address, gave the history of his inventions in the field of picture transmission by radio. Mr. Jenkins is a pioneer in that field, and now operates a broadcasting station which transmits moving pictures. Professor

Tyler '84, who was temporarily in Washington in his capacity as Secretary of the National Association of University Professors, gave a brief address, and Proctor L. Dougherty '97, President of the Board of Commissioners of the District of Columbia, also spoke.

About seventy persons were present, including forty graduates and their wives. Alfred E. Hanson '14, President of the Society, presided, and Henry C. Morris '00 was chairman of the committee on arrangements. Other members present were: Alexander Winthrop '83, Kenneth P. Armstrong '10, Miss Jane H. Bartlett '00, John Boyle, Jr. '01, Charles L. Brown '88, Walter L. Cook '03, William M. Corse '99, Walter C. Dean '00, Parker V. Dodge '07, Mrs. Parker V. Dodge '16, Harold V. Fay '14, John R. Freeman, Jr. '16, Samuel B. Gahm '27, Charles H. Godbold '98, Lyman F. Hewins '98, Frederick A. Hunnewell '97, Edward M. Lee '25, William D. Lynch '04, Allen B. McDaniel '01, Thomas T. Neill '26, Israel R. Paris '14, James A. Pennypacker '23, Henry M. Phillips '92, George A. Ricker '86, William J. Rooney '15, Stanley C. Sears '01, Louis A. Simon '91, Frederick W. Southworth '00, George W. Stone '89, Peter M. Strang '18, Charles H. Stratton '00, Frederick W. Swanton '90, Starr Truscott '07, Marion I. Walters '23, Edward W. Washburn '05, and Francis G. Wells '22. — KENNETH P. ARMSTRONG '10, *Secretary*, 2002 Rhode Island Avenue, N.E., Washington, D. C.

New Haven County Technology Club

The third meeting of the New Haven County Technology Club for the present season was held at the Winchester Club House on Saturday, January 26. On this occasion we invited the Dartmouth Club of New Haven to join us.

The evening opened with a most interesting moving picture lecture by William R. Hainsworth, Ph.D. '21, covering his experiences last summer in the Canadian Rockies. With his three companions, Hainsworth achieved the unusual distinction of making three "first ascents" in one season, and both the moving pictures and his anecdotes made a very thrilling story. Hainsworth is now a research chemical engineer for the National Refrigerating Company.

Not as many Dartmouth men were present as we had hoped for, so that our inter-college sports program had to be restricted to a "varsity" bowling match which we won, 2-0. Altogether it was a most enjoyable evening, and all agreed that we should have more joint powwows with other college organizations in the city. — HUDSON B. HASTINGS '07, *Secretary*, 6 Everit Street, New Haven, Conn.

Technology Club of Puget Sound

Frank P. McKibben '94, consulting engineer for the General Electric Company and the City of Schenectady, author, and former professor of civil engineering at Union College, addressed the American Institute of Electrical Engineers, architects, and contractors on February 12. His subject was "Welding of Steel Buildings, Bridges, and Other Structures." A number of Technology men were present to welcome Mr. McKibben to Seattle and the Northwest.

Lists of Technology men in this district have been mailed out to every one in an effort to create more interest in club activities, and we anticipate monthly luncheons in the near future. — MIDDLETON M. CHISM '28, *Secretary*, Electric Heating and Manufacturing Company, 400 Sixth Avenue North, Seattle, Wash.

The Technology Club of Rochester

The Technology Club of Rochester and the Alumni of the Institute have lost one of their most prominent members in the death of Mr. James Henry Haste of the Class of '96 which occurred in January. Notes on Haste's activities during his life were included in the '96 Notes and in the Rochester Club Notes for March. Mr. Albert F. Sulzer '01 has become the new manager of Kodak Park, succeeding Haste. He has been a member of the Kodak organization since his graduation from the Institute, and since 1920 has been assistant manager of Kodak Park in charge of production. Mr. Sulzer has always been actively interested in Technology affairs, is a Past President of the Technology Club of Rochester, and is at present a member of the Club's governing executive committee.

Since the annual fall outing and business meeting of the Club in September, three luncheon meetings and one theatre party have been held. The December luncheon meeting was held during the Christmas holidays in honor of the undergraduates from the Rochester district who are attending the Institute this year and it was a great pleasure to have sixteen of these young men present as our guests.

A theatre party was held at the Temple Theatre on January 21 to raise money for our Freshman Scholarship Fund. The Club guaranteed the theatre a fixed amount of money for the regular professional performance that evening and sponsored the show. The members of the Club increased the box office sale by selling tickets to their friends and the entire net proceeds over the guarantee and a few

incidental expenses went to our Scholarship Fund. The ticket sale for the show, which was "Paris Bound," was very successful and we realized a net profit of about \$980 for the Freshman Scholarship. Thus we have on hand sufficient money to continue the scholarship through the school year 1930-1931. The theatre project was strictly a business affair, but it is planned to hold some sort of a party in the near future which we hope to make as successful socially as the other was financially. — HENRY R. COUCH '20, *Secretary*, 126 Albemarle Street, Rochester, N. Y.

Southwestern Association of M. I. T.

Samuel Chamberlain '18, who has furnished a number of very fine etchings used on the covers of *The Technology Review*, lectured on making drypoints and etchings to a very interested audience at the Kansas City Art Institute on January 26. On the evening preceeding the lecture, Chamberlain was guest of honor at a dinner of Kansas City architects.

The February luncheon of our Association was held at the University Club, Kansas City, on February 13. There was no formal program.—C. ELLWOOD BROWN '20, *Secretary*, 402 Interstate Building, Kansas City, Mo.

Technology Club of Albany

The December meeting of the Technology Club of Albany was held Thursday evening, December 6, at the University Club. Dr. Horatio N. Pollock of the State Department of Mental Hygiene was slated to speak, but due to his illness, and to the presence of only a few members, the meeting turned into an informal dinner party. Joe Harrington '11, Burt R. Rickards '99, E. B. Davidson '24, and E. Randolph Haigh '22 forming the foursome.

On the evening of February 1 another meeting was held at the University Club with about seventeen Alumni present. President Burt Rickards presided at the business meeting. Bill Schofield '10, Chairman of the Scholarship Fund Drive, reported that about \$85 of the necessary \$150, our share of the fund, had been collected. The Troy contingent has come across nobly and are nearly 100 per cent

subscribed. The Albany men were again urged to give, and the committee was advised to keep on striving for funds until our quota is 100 per cent. Upon motion duly made, seconded, and carried, it was agreed that President Rickards should appoint a nominating committee of three persons to bring before the next meeting a list of men to be nominated for offices for the ensuing year.

One of the most pleasant features of the evening was the presence of a number of younger Alumni and new men in our midst. The speaker of the evening was C. Hancock Wood '91, highway engineer. He presented the latest facts regarding the proposed new Hudson River Bridge and grade crossing elimination at Albany, which proposition is before the present legislature for adoption. Mr. Wood is probably the best qualified man to do this, as he made the design and estimates for the bridge. The exhibit of drawings and blue prints of the proposition was eagerly gone over by those present.—E. RANDOLPH HAIGH '22, *Secretary*, University Club, Albany, N. Y.

Technology Club of Philadelphia

The annual Christmas luncheon of December 27 in honor of the students from the Philadelphia district attending the Institute was a great success. In fact there were so many more there than were expected that our little alcove in the Arcadia Café Grill Room soon became full and we had to overflow into the main room. Nineteen undergraduates honored us with their presence and several of them gave us very interesting talks on their activities at the Institute. Col. David A. Lyle '84 and Claude A. Anderson '05 gave short talks, the latter urging the undergraduates to consider jobs in their home town upon graduation and pointing out the advantages of so doing. To help carry out this suggestion the Secretary will be glad to give to any Alumnus who will need young men, the names of the Philadelphia boys who will graduate in June.

On February 6 about thirty-five of us enjoyed a good dinner at Bookbinders', after which we had the pleasure of having Paul R. Delling, President of the Delling Motors Company of Camden, N. J., read a paper to us on "Steam Powered Motor Coaches and Dirigibles."

Undoubtedly there are many Alumni living around Philadelphia who are not on our mailing list. We wish they would come around to our regular Thursday lunches at the Arcadia Café, Widener Building, Juniper and Chestnut Streets, at 12:30.—F. GURNEY FINE '26, *Secretary*, 431 Walnut Street, Philadelphia, Penna.

Montana Society of the M. I. T.

At a regular meeting and dinner of the Montana Society of the M. I. T. held at the new Hotel Finlen on February 10, it was voted to send a remembrance and telegram to Charles W. Goodale '75 felicitating him on his improvement in health and voicing the good wishes of the organization for his continued improvement. Mr. Goodale, who was graduated from Technology with the Class of '75 and was long a resident of Butte, was one of the founders of the local organization. He has been its chairman since its founding in 1915. While living in Boston he represents the Society at the Alumni Council Meetings, supplanting George A. Packard '90 who recently resigned.

Mr. Packard, who formerly was manager of the Raven Mine here, was given a rousing vote of thanks at the meeting for his efficient representation of the local Society at the Alumni Council meetings in Boston during the past few years. It was also resolved that a message of condolence be sent to the family of the late P. J. Brophy, who always took a great interest in the Society's affairs, as his son, T. D'Arcy Brophy, now connected with the New York office of the Anaconda Company, is a graduate of the Class of '16.

Those present were: Walter R. C. Russert '18; Louis A. Stadler '01; Frederick C. Jaccard '07; William L. Credon '90; William M. Walterskirchen '24; William A. Kemper '04; Professor Frederick C. Gilbert '98; J. Irvine Davidson '27; and Carl J. Trauerman '07.

The next meeting of the Society will be held in honor of the wives of the members. The dinner is to be given at the new Finlen Hotel in April. It is also planned to hold a picnic at Broadwater, near Helena, this summer in cooperation with the Great Falls members.—CARL J. TRAUERMAN '07, *Secretary*, 25 East Broadway, Butte, Mont.



Suddenly, out of a spring sky . . .

*An Advertisement of the
American Telephone and Telegraph Company*

ALL was well on the telephone front on April 27, 1928. Suddenly, out of a spring sky, rain began to fall over central Pennsylvania. As night came on this turned into a furious storm of sleet, snow and wind. Inside of 48 hours, 3700 telephone poles were down. Seven thousand miles of wire tangled wreckage. Thirty-nine exchanges isolated. Eleven thousand telephones silent.

Repair crews were instantly mobilized and sent to the scene. From Philadelphia 47 crews came. Other parts of Pennsylvania sent 13. New Jersey, 6. New York, 4. Ohio, 6. Maryland and West Virginia, 12. In record time, 1000 men were stringing insulated wire and temporary cables along the highways, on fences and on the ground.



Within 72 hours the isolated exchanges were connected and the 11,000 telephones back in service.

Then, while the temporary construction carried on, neighboring Bell System warehouses poured out all needed equipment, new poles were set, new crossarms placed and new wire and cable run.

In any crisis there are no state lines in the Bell System. In all emergencies of flood or storm, as well as in the daily tasks of extending and maintaining the nation-wide network, is seen the wisdom of One Policy, One System, Universal Service. Better and better telephone service at the lowest cost is the goal of the Bell System. Present improvements constantly going into effect are but the foundation for the greater service of the future.

"THE TELEPHONE BOOKS ARE THE DIRECTORY OF THE NATION"

DIVISION OF INDUSTRIAL COÖPERATION & RESEARCH

THROUGH this Division the equipment of the Institute laboratories and the experience of its staff members are made available to a limited extent for the study of industrial research problems. Details of this service will be supplied upon request to those interested.

The Division maintains a list of graduates with records of their experience and special qualifications for engineering and technical positions. A list is also kept of positions open.

Graduates will materially help the Division by reporting new experience, changes of position and availability for new connections.

All inquiries should be addressed to the
DIVISION OF INDUSTRIAL
COÖPERATION & RESEARCH
MASSACHUSETTS INSTITUTE of TECHNOLOGY
CAMBRIDGE

CAMERAS WITH EARS

(Continued from page 331)

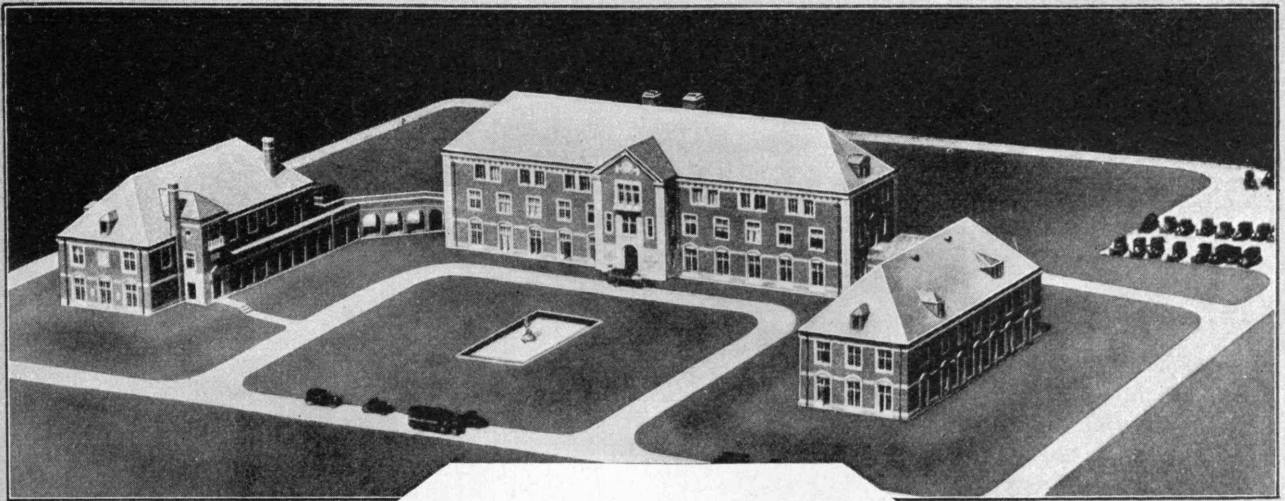
technicians and their work is greatly changed. Furthermore, the industry, having in a large measure been caught napping by the development of the talking picture, is looking for and is expecting still further developments even to the extent of radio movies, a development which most competent technical men feel is far off. The point is that the industry now thoroughly realizes that in an art-form entirely dependent upon technical procedures improvements in these methods are bound to open up new possibilities.

Consideration of the illustrations will show the extent to which the technical operations in the taking of motion pictures have been increased. Formerly in the production end of the business there were four important technical positions involving (1) The design and construction of sets, (2) The design and operation of effects, (3) The cameraman, and (4) The laboratory man. The details of the work of all these men has been considerably changed. The man in charge of the design and construction of stages and sets must now concern himself with acoustic considerations, the cameraman must make his work conform to the additional requirements of sound, the laboratory man must give fully as much attention to the sound track as he does to the picture film. Particularly where sound and picture are on the same film (and this method is rapidly supplementing the older combination of disc and film), there are very important considerations effecting the combination of good photographic quality with good sound quality. In addition to these changes new positions have been created. There is the man in charge of placing and handling microphones and the mixing and modulation of the pick-up from the various microphones to obtain the desired effect. There is the interlocking system whereby pictorial record and sound record are made in perfect synchronism. Then there is the matter of retaining that synchronization through the stages of cutting and assembling the various individual scenes to make the completed picture. Corresponding to the picture printing technique there is the sound printing and reproducing technique where cueing and modulation control must be introduced to assure that in the theatre there will be a flow of sound from scene to scene rising and falling in intensity as required by the desired dramatic effect.

The illustrations at the bottom of pages 330 and 331 show the set-up for photographing a scene in "The Jazz Singer." Note the four microphones hanging from the ceiling, one close to the singer and three in various localities above the orchestra. Note, too, the sound-proof camera booths and the large incandescent lamp housings.

On page 330 is shown the inside of a sound-proof camera booth showing the synchronous drive device working through flexible shafts to the cameras, the sound-proof walls, and in the foreground a suggestion of the scene itself out through the double glass window in the booth.

The photograph on page 331 shows the monitoring control panels placed in a bay high up on the side wall of a sound-proof studio. Through the windows of the bay may be seen a set, a back- *(Concluded on page 376)*



THE Home Office of Pilot Life Insurance Company, of Sedgfield, Greensboro, N.C.—illustrated here—is fully equipped with The Johnson System of Heat and Humidity Control.

Zantzing, Borie & Medary, Philadelphia, Architects; Harry Barton, Greensboro, Associate Architect; I. H. Francis, Philadelphia, Engineer; W. W. Dick, Greensboro, Heating Contractor.

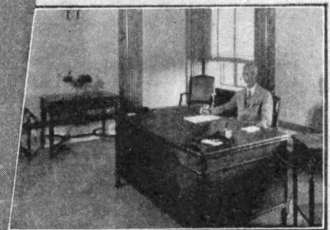
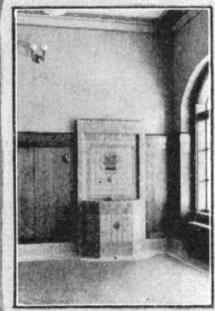
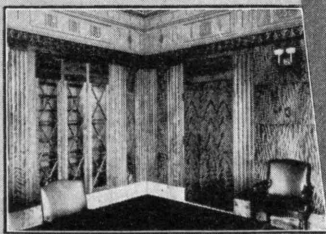
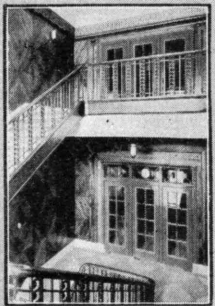
When The Johnson System is installed it is done so with *absolute certainty* of performance and results, and with a specific warranty of excellence and service from this forty-four year company of long and honorable reputation.

And there are definitely established, proven reasons why The Johnson System of Heat and Humidity Control has an important, necessary place in every building designed to-day: correct temperature condition and comfort in regard to hygiene and efficiency, and the fuel economy of 25 to 40 per cent annually.

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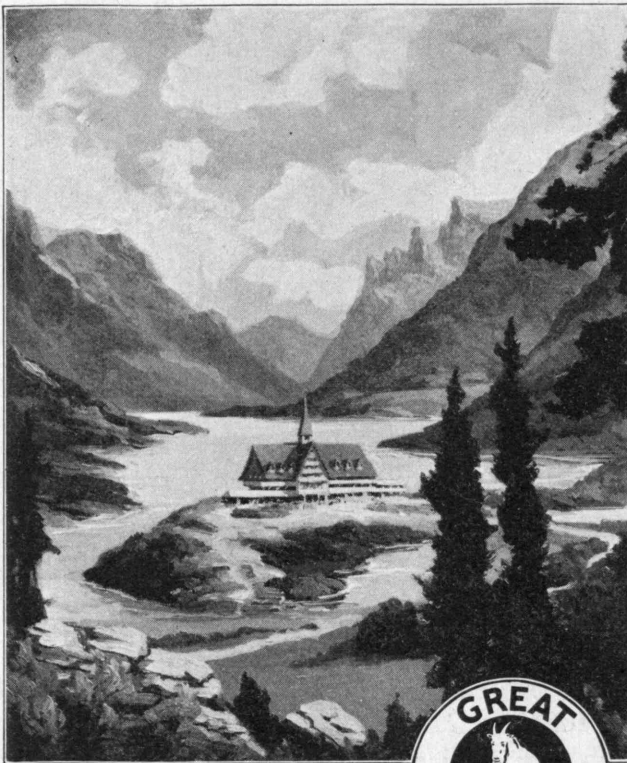
CAMERAS WITH EARS

(Concluded from page 374)

ground, and large incandescent lamps illuminating the set. From this bay the modulator man watches the action and mixes and controls the pick-up from the various microphones. He is watching the scene through the glass windows, but he is hearing the pick-up from the scene through the microphones, amplifiers, and a loud speaker which is in the monitor room but not in the picture.

In addition to the apparatus shown in these illustrations there are amplifiers, batteries, generators, and recording machines. Men to operate this new equipment are being drawn from the electrical companies and the radio broadcast studios.

In conclusion, I should like to emphasize that the talking picture is a typical development of today. New fields are continually opening up which are outside the usual engineering channels and which in themselves create new arts and industries. With the ever increasing speed of development, the time within which these new things evolve and reach maturity is becoming less and less. The evolution of air transportation is proceeding at a greater rate than did that of rail transportation in its early days. Radio telephony is evolving much more rapidly than did wire telephony. The time will come, if it is not already here, when developments will put in their appearance and reach maturity, generally speaking, within one generation.



*Four or more
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The Kiowa Raid



In June 1900, the nation's press rang with the account of how one Mrs. Carrie A. Nation, embattled W. C. T. U. jail evangelist of Medicine Lodge, Kansas, had single-handed wrecked a saloon in the neighboring town of Kiowa, operated in disregard of state laws, unenforced because of public officials' venality. As *TIME* would have told the story, had *TIME* been issued June 18, 1900:

... Her arms stacked high with bricks and stones, a sharp hatchet beneath her arm, Mrs. Nation then walked boldly into Dobson's back-room saloon. Barflies and roustabouts stared, open-mouthed. Eyeing Owner Dobson who stood serene among his cronies, she bawled in a loud voice: "I told you last spring to close this place and you didn't do it. Now I have come down with another remonstrance. Get out of the way. I don't want to strike you, but I am going to break this place up!" Then, striding to the bar, behind which stared one Hank O'Brien, she cried: "Young man, come from behind that bar. Your mother did not raise you for such a place." As Hank O'Brien stupidly gazed, she threw a brick against the heavy

mirror—which did not break. Then, warming to her task, she hurled bricks and stones right & left. Bottles, decanters, glasses, lewd pictures crashed to the floor. The barflies scattered, blaspheming loudly. The mirror remained intact. Seeing a lone billiard ball on the table, she seized it with a fervent "Thank God!" and shattered the mirror. Owner Dobson cursed; Bartender O'Brien crouched monkey-like behind his bar. A crowd was gathering before the door. Finally, ammunition exhausted, Carrie A. Nation bounded for the bar, hatchet upraised. Again and again she hacked the mahogany as whiskey and rum coursed to the sawdust.

At last, invincible, with the strength of ten, she pushed away the irate Dobson and strode to the street, announcing in firm tones: "I have destroyed your place of business and if I have broken a statute of Kansas, put me in jail. If I am not a law-breaker your mayor and councilmen all are. You must arrest one of us, for if I am not a criminal, you are." . . .

So too would *TIME* have noted Carrie A. Nation's claim to divine guidance. Nor would *TIME* have neglected to report her sensational raids in many another city, her numerous incarcerations in local bastilles, her way of addressing judges as "Your Dishonor."

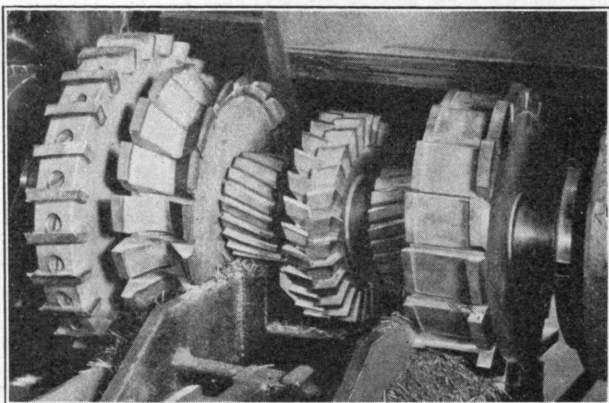
Cultivated Americans, impatient with cheap sensationalism and windy bias, turn increasingly to publications edited in the historical spirit. These publications, fair-dealing, vigorously impartial, devote themselves to the public weal in the sense that they report what they see, serve no masters, fear no groups.

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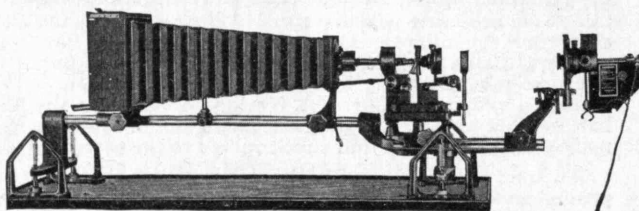
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MILLIONS OF AUTOMOBILES

(Continued from page 334)

appreciation of its responsibilities as trustees should it approach the question from any other viewpoint. We not only send to our stockholders quarterly reports of our financial position and operating results but from time to time during the year I send messages to our stockholders telling them of our hopes and ambitions and explaining developments which should give them a better insight into our position.

In dealing with the members of our organization, over 200,000 of them, we subscribe to the principle that they are entitled to the best conditions of employment and all the facilities in connection with their employment that add to the maintenance of health and comfort. In addition to the daily wage they are given an opportunity to participate, depending upon their status in the organization, in the profits of the business, the success of which depends directly upon them.

The point has been made that the partnership idea resulting in the financial independence to a greater or less degree of an important part of any organization must necessarily result in lowered efficiency through less intensive effort. In the case of General Motors it is a fact that due to the development in effectiveness and scope of our operations with the resulting increase in profits together with a rapid appreciation in the value of our securities there has come about a situation where not only the Corporation's major executives but its executive staff quite generally find themselves in a position of financial independence — a situation which even five years ago they could hardly have dreamed. The problem presented is no different than any other problem. It is a matter of proper procedure. Further, to my mind instead of having a tendency to lower the efficiency of the organization it has, if properly dealt with, the contrary effect; viz., of stimulating the business to a higher standard of achievement.

Next we try to recognize the position of our suppliers. In our case there are several thousand manufacturers of components and materials whose progressiveness and ability have meant much in the development of our great industry. In this connection I should not fail to likewise mention manufacturers of machinery which fabricate those materials. All are entitled, in principle, to a reasonable return on their capital employed, but they must be charged, as we all must be charged, with conducting their business with the highest possible degree of efficiency and effectiveness.

Then we are concerned, as I have already explained, with the position of our distributing organization.

Now we reach the public. As I have stated already, the public is entitled to the best possible service and the greatest dollar value that our present stage of industrial development makes possible. Further, it is entitled to a product that reflects, as circumstances make it possible for it to reflect, the improvements which come about through research, engineering and improved manufacturing methods.

The next principle is — we must get the facts. My business experience has always indicated that it is not difficult to make a constructive decision if *(Concluded on page 380)*



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Fairchild photograph on Page 340



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(Concluded from page 378)

we can get the facts but it is extremely difficult to get the facts. In our organization we try to get the facts through extensive research activities — facts about the laws of nature concerning which, after all, we yet know relatively little. We try to get the facts in engineering and manufacturing and in every way possible through the recognition of the principle of instrumentation which eliminates opinion. We get the facts concerning the statistical side of our business through a very effective and far reaching system of accounting and forecasting. In addition to this, as I have also already explained, our executives — all of them — not only travel this country in detail but travel the world in order to get the most intimate possible contacts with our problems at their source. Therefore, the principle is — we must get the facts and base our decision and procedures on facts alone.

The next principle is that we must recognize at all times the importance of dealing with the facts with an open mind. There is nothing that delays progress like too strict adherence to history and to precedent. I sometimes wonder what we really could accomplish and to what heights of prosperity we really could rise if we were not limited by the inertia of the human mind.

Then we must recognize that irrespective of how well we may do or think we are doing our particular job today, it must be done better tomorrow. It must be done still better next week and again, still better next month. We must make continual progress if we are entitled to survive.

Now, those are the principles which I try to keep in mind and our organization tries to keep in mind in meeting the problems that confront us. It seems to me those principles are applicable to any industry and to any business in any country in which industry and business exist. I believe there are tremendous opportunities in this country today to do bigger and better things in a more efficient and effective manner than ever before, but I want to emphasize the point that irrespective of what those opportunities may be, irrespective of what principles we may adopt in capitalizing those opportunities or how clearly or consistently we may interpret those principles we must never lose sight of the fact that after all the most important factor is missing, hard work and a recognition of the fact that irrespective of what our individual part may be in any organization, be it that of the humblest worker or the most important executive, our own success and the institution's success is dependent upon the willingness of each and every one of us to make the sacrifice of time, personal convenience and effort to give at all times all there is to give for the good of the cause.



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TECHNOLOGY CLUB OF NEW YORK

BOOKS

Concluded from page 349

The two professors authorized by the Yale Corporation constituted the School of Applied Chemistry, a part of the newly created Department of Philosophy and the Arts, and in 1852 the first class was graduated with the degree of Bachelor of Philosophy. In the same year a course in civil engineering was begun, and two years later this School of Engineering and the School of Applied Chemistry were formally recognized as the Yale Scientific School. Physics, "industrial mechanics," metallurgy, analytical chemistry, and so on, were added to the curriculum and in 1861, one year after the founding of the Institute, the School awarded Ph.D. degrees, the first to be given in America.

The relations between the College and the Scientific School have not always been sympathetic. From time to time differences of opinion have arisen which call to mind the furor that broke loose at the Institute when the question of its annexation to Harvard University was being discussed. Since the beginning, the School has operated on its own endowment funds and tuition fees, although, of course, in later years the necessity for a unified control in the University has brought about a consolidation of some of the administrative details.

Both the School and the College offered courses in the field of the other. The "Select Course" of the Scientific School (a broad, scientific course with a liberal admixture of the humanities) was in competition with the classical courses of the College; and, on the other hand, the College was steadily increasing the number of its courses in the sciences. With the reorganization of the University in 1919, the matter came to a head, and was settled, it appears, very much to the disadvantage of the Sheffield Scientific School. By the terms of a new ruling, "Yale College is the University's undergraduate school for non-professional study in the liberal arts and sciences, while the Sheffield Scientific School is the University's undergraduate school for the professional study of science and engineering." The first undergraduate year is made common for both groups.

These changes in themselves do not, apparently, arouse the ire of the friends of the Scientific School. The last straw was the stripping from the school of its graduate courses, and Dr. Chittenden bitterly remarks: "How will a so-called School of Engineering appear to a critically-minded public, with all the higher branches of engineering study in the hands of a separate faculty connected with another school, even though of the same university? Such a half school cannot expect much prestige as a training place for engineers."

Dr. Chittenden has done a thoroughly competent job in writing this history. He has given a carefully documented story of a justly respected experiment in American college education. The book itself in design, printing, and binding are of the usual high standard of the Yale University Press. In closing, we forgive whoever was responsible for the reference to the Founder of Technology as William P. Rogers.

J. D. C.



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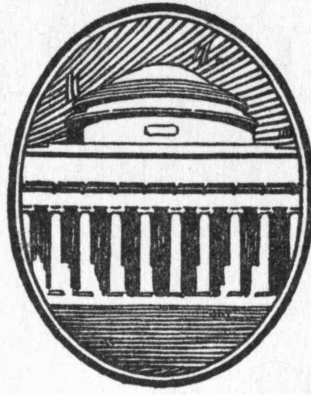
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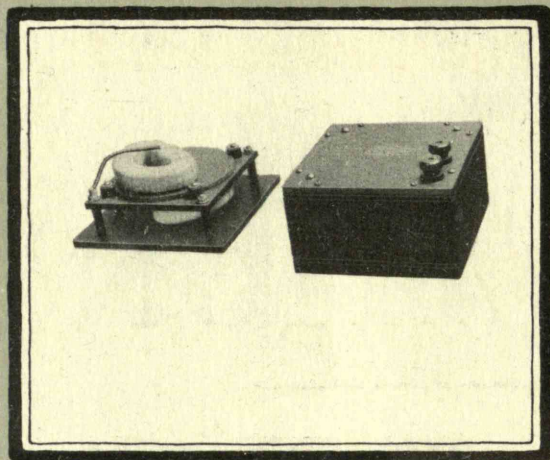
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